

FREE!



No 782

Friday 30th October

Felix

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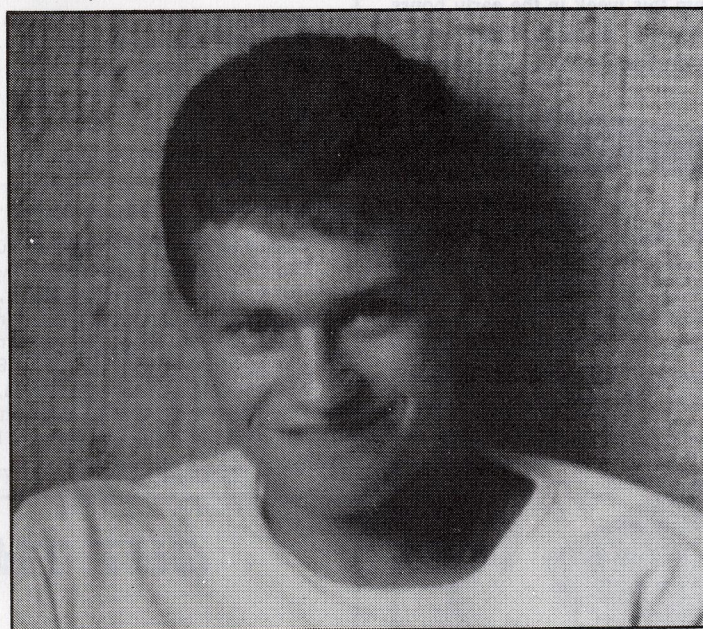
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Lots of them.

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Contentious issues debated at the back.

Heroic rowers save woman from Thames

Two members of the Imperial College Union Boat Club were acclaimed as "heroes," after rescuing a drowning woman from the River Thames on Wednesday afternoon. The woman, who was in her mid-sixties, was found unconscious in the river near Fulham Football Ground. It is believed that she may have been trying to commit suicide as she was fully clothed.



Steve Pierson—branded a hero on Wednesday

The incident occurred while members of the Club were practising on the river near to the Club Boathouse in Putney. The coxless fours team was approaching

the boathouse when they noticed a person apparently swimming in the water. It was only after the boat had passed the body that they realised she was in fact drowning. Steve

Pierson (Mech Eng 2) dived from the boat and pulled the woman to the river bank, while another of the oarsmen, Vincent Roper, also dived in to try to help her. The boat was rowed to the shore by Rob Gee and Nick Leigh.

Once at the bank, Steve gave the woman 'mouth to mouth' resuscitation. In the meantime, the crew's trainer Mr Bill Mason brought blankets for the woman and her rescuers. Four police cars and a police launch then arrived, having been alerted by a member of the nearby Barn Elms Boat Club who had witnessed the incident. These were followed by an ambulance. The woman, aged 65, was conscious when taken to hospital, although she was shaken and very confused.

Rob Gee, Captain of the Boat Club and Chairman of the Union Athletics Clubs Committee, said that the woman would not have survived in the water if the incident had occurred in Winter. The temperature of the water was about 12°C on Wednesday, which was exceptionally warm for this time of year.

Rob told FELIX yesterday: "You can classify Steve and Vince as real heroes—the genuine article!"



editorial

This week has been one of those nightmare weeks where there's too little space with too much to put into it. Not only this but all the Print Unit machinery has gone haywire—this may mean that I will have to be selective about what goes into FELIX for the next few weeks.

Special Rag Issue

In two weeks time (13.11.87) FELIX will be devoting itself to Rag Week. 25% of income raised through advertising in that issue will be given to Rag. We will also be charging at least 20p to Rag for each small ad or diary entry we print. Please support our efforts by putting as many small ads in as you can possibly afford!

Next week's issue will preview all the events lined up for Rag Week.

Soul Searching

In this week's issue we have printed

yet another article about the soul. This will be the last one as the subject is now getting a little hackneyed (geddit?). I suggest that the rest be left to Debating Society.

No Censorship

Last week I was asked why FELIX has stopped printing the President's report on the Union page. It seems that many of you believe that I am refusing to include anything written by him. This could not be further from the truth. Sad to say, Mr Howgate has not submitted a Presidential Report to me since the Freshers' Issue.

Southside Fire Alarms

Those damned fire alarms went off again this week in the early hours of Monday morning. I had just put my dressing gown and slippers on

and locked my door when it was switched off. This alarm fiasco has been going on ever since I've been at College. Never fear, though, you'll know when the fire's a real one: all wardens have been instructed to shout up the staircases and from Princes Gardens 'It's a real fire. Get out!'. Whoever thought that one up has less brain power than Dave Tyler. With the alarms cutting out all other sounds, how are we meant to hear the odd warden shouting at us from the gardens? So until College *finally* sort the whole system out, my advice is don't ignore the alarms and listen out for your frantic warden's voice!

Electronic Media

The first meeting of Publication's Board this year met last Monday. I was saddened to hear that both IC Radio and STOIC are suffering from their massive membership fees. IC Radio has only 28 members so far, IC Radio is meant to broadcast over 100 hours each week. You don't need an 'O' level in Mathematics to work out that some people have to do an awful lot of broadcasting to maintain the output required. The electronic

publications may not serve as many people as FELIX but they still provide a *valuable* service. I think it's time to realise that publications are different from other clubs at IC and that any person should be allowed to contribute to these services without having to pay out of their own pockets.

Print Unit

There is now a month's waiting list for printing. If you are a club/society and you need printing for early December/Christmas you ought to see me *now*.

Sweatshirts

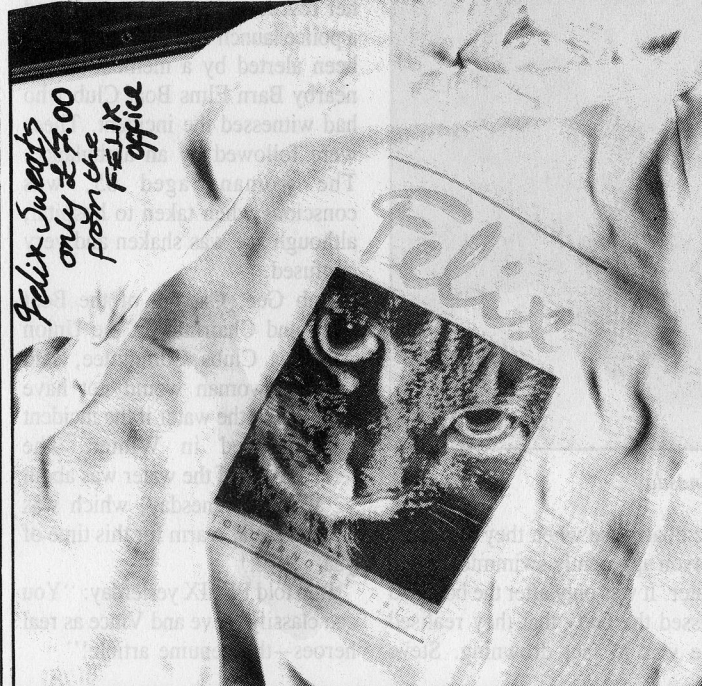
The sweatshirts have now arrived in the FELIX Office. They're extremely tasteful and make good Christmas presents

Staff

Anyone is welcome to attend our staff meeting today, 1pm in the Office.

Editor-in-chief	Judith Hackney
Business Manager	Chris Martin
Reviews Editor	Ashley Niblock
Features Editor	Dave Burns
Sports Editor	Dominic Strowbridge and 'Hector' Sullivan
Science Editor	Steve Black
Typesetting	Rose Atkins
Printing	Shane Latchman and David Jones

Contributors: Pippa Salmon, Rupert Clayton, Martin Cole, Sue Browne, Al Birch, Al Roberts, Adrian Bourne, Steve Kilmurray, Chris Jones, Louise, Nigel Baker, Simon Bradshaw, Lisa Ingram, David Jones, Chris Martin, Andrew Waller, Kamala Sen, Aaron Kotcheff, Pete Higgs, Dave Burns, Dave Williams, Robert Gee, Neil Motteram, Rachael Black, Bill Goodwin, Alastair Stewart, Mark Beveridge, Abby Amushila, Dave Smedley, Simon Passey, Lloyd Ruddock, Keith Lowthian, Thomas Gregg, Gareth Fish, James Papa, Chas Jackson, P Baker.



CUT THE KRAP

*Cut 'n' Blow Dry £5.00
Wednesday 10am onwards
in the Ents Room (above the
New FELIX Office)*

Censors' happy ending

THE QUESTION of censorship of IC Union publications has been amicably settled at the meeting of Publications Board last Monday. Members of the Board, including heads of publications and the ICU Executive, unanimously approved a new motion stating that the Editor of the ICU Handbook should have final say on the contents of the Handbook, but that an 'open committee' should be set up to advise the Editor and allow all relevant points of view to be considered. This motion will now be submitted to the next UGM as an amendment to a previous motion which had suffered many amendments put forward by Ian Howgate at the last UGM.

The chips are down



TUESDAY'S Union General Meeting (UGM) is to be held in the Junior Common Room (JCR), and not in the traditional venue, the Great Hall. The Union Executive took the decision in the hope of attracting a larger audience, after only 100 students turned up at the recent Freshers' UGM.

The meeting will start at 1pm, with the added incentive that College will be providing free chips from the QT Burger Bar with every Imperial burger sold between midday and 2pm. This makes good a promise made by ICU President Ian Howgate during his first election campaign last year.

ICR Peril

A WILD story of death and destruction shocked College on Tuesday, when IC Radio's Southside Studio was engulfed in a small cloud of smoke.

A minor fault in the studio headphone amplifier was the culprit. A small potentiometer burnt out and caused the early demise of the lunchtime show.

The dedicated team of IC Radio technicians soon repaired the fault, closely watched by a group of worried, and grief-stricken DJs.

An IC Radio spokesman said later 'We only lost 15 minutes of programming out of 100 hours per week, and if you blow this out of proportion I'll cut off your boll**ks!

New loss

IT IS LIKELY that the Government's new housing benefit scheme will result in losses of over £2 per week for IC students. Students in other parts of the country will be hit much less severely. The scheme comes into effect in April 1988. IC students with under £3000 savings will have to contribute 20% of their rates bill. Those with £3000 to £6000 savings will have to pay £1 for every £250 or part thereof held. The rate at which the rent section of the benefit will be withdrawn with increasing savings will be increased to an even higher level than the Government first proposed.

Bike heist

SINCE October 19 eight bicycles have gone missing from College, most being stolen from outside the Science Museum Library. Geoff Reeves Security Chief at College pointed out that none of the bikes had a proper cycle lock, which are available from College for £16.25. It takes only a few seconds for a chain or cable to be broken by a professional thief. Wallets are also being stolen from around College. College Security advise all students to be careful and not to leave bags and jackets unattended.

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The Worldbeaters

Merger Bill

THE SENATE will discuss the terms of the Imperial and St Mary's merger on November 4, and a petition of the Bill will be presented to Parliament on November 20. Copies of the Bill will appear in the Times (20 and 27 Nov) and the London Evening Gazette. The readings of the Bill will take place between January 30 and February 6. The Act will come into effect on August 1 1988.

Reborn

THE FIRST new-style Phoenix is to be published at the end of November, it was decided last year that Imperial College Union needed to produce an arts and literary magazine but, due to poor sales of the previous annual issues, they decided to produce a pamphlet containing poetry, prose and photography five times each year. The last annual issue is available from the FELIX Office at 50p.

Extra-ordinary meeting

The Extraordinary General Meeting of the Imperial College PG Group will take place on Thursday November 5 at 12.45pm in the Lounge in the Union Building. All postgraduate departmental reps should attend as should anyone who is thinking of serving as the PG Group MSc Rep, ordinary members, Hon Sec, etc.

The meeting will probably last for about ½ hour and it is important that those who are required to attend, attend. All PGs are welcome PhD or MSc.

Thanks for reading this.
Gareth Fish

IC Gay OK

Anyone who was here last year and read FELIX letters can probably remember the fervour over College having a Lesbian & Gay Welfare Officer, which resulted in Robert Daniels and then Andrew Bannister sitting on the Union Council last year. Unfortunately they have left College, so this year I have volunteered to try and do the job, and the Council has generously co-opted me as a non-voting officer.

People who weren't here last year or who didn't follow this last year might wonder what I'm supposed to do. Well, I don't know either, but what I will try and do is.

1. Sit on Council meetings and see that IC's Lesbian and Gay interests are represented.

2. Be there for anyone who wants to talk to me (especially if they want to ask me to dinner).

3. Hopefully help people to realise that lesbian, gay and bisexual people exist at IC and that they are normal people (not infuriating queens!).

If anybody wants to talk to me contact me through the pigeonholes in the Mech Eng Foyer (James Papa, Mech Eng II) or come to the meeting in the Green Committee Room, Wednesday 12.30pm, we are going to elect a Chairman and other committee members soon.

Honorary Sex

Halls Insurance

Cheques for the following people are available in my office, on production of a Union Card. Cheques are now coming in in large numbers so watch this space.

C Niskier
A J Willis
T D Shaw
J A Elliot
J G Van Der Broek
J Calvin
E Gedney

Also could the following people please contact me about their extra cover from last year as the insurers re-calculated the premium to take account of vacations which should not have been paid for in the premium. I will be able to explain further if you could please contact me.

R J Molloy
C Keener
J Rhodes
A J Gatrex
P Clark
M C Schmidt

Elections

These are to be held at the UGM on Tuesday November 3. So far the



following posts have people standing for them.

Internal Services Officer:

Al Birch
Miles Henderson

Ordinary member of Council

Dave Williams
Alan Hepper

Ordinary member of UFC

Mark Harris

Rep on Students Residence Committee:

Gillian Cutler
Liz Hoskin

Haldane Record Buyer:

Rory Curtis
Richard Pott

Member of GUC Delegation:

Charles Brereton
Linzi Wishart

As Mark Harris is the only candidate for UFC, he will merely require ratification. For those posts requiring an election, each candidate and/or proposer can speak for a total of two minutes.

Papers for the other posts advertised are still up as there are still insufficient candidates. Each set of papers will come down five days after a fully proposed and seconded candidate is received.

Publicity rules are available from my office. I will take a very dim view of anyone flaunting them.

Parking Permits

Anyone who has been allocated a permit and who has not collected it by 5.30pm on Monday November 2 will be assumed to longer require it. A list is available in the Union Office for anyone who is unsure as to whether they have been allocated a permit. Anyone wishing to query the decision of the Allocations Committee should see me, not Kathy Tait the Union Receptionist.

Chas Jackson (ext 3503).

OLD CENTRALIANS invite you to the CAREERS RECEPTION for GRADUATING STUDENTS

TUESDAY 3 NOVEMBER 1987

Senior Common Room, Sherfield Building, Imperial College, SW7
6.00 to 8.30pm

(Light refreshments with wine will be served)

This is a unique opportunity to discuss careers and prospects with graduating students and give them the benefit of your experience. For members who left College before 1984 and for all guests, the ticket price is £14 including VAT. For all members who left in 1984 and after, the ticket price is £7 including VAT. Student members still at College are free. Please call at Room 303 Sherfield Building, Imperial College for your tickets.



Phoenix

FREE FROM THE FELIX OFFICE

VOLUNTEERS WANTED

Nightline needs new volunteers. If you're interested come along to the basement of 9 Princes Gardens at either 2.30 or 7pm on Monday, November 2. If you're going to be busy then give us a ring after six on either 581 2468 or internal 6789 and some other time can be arranged. You don't need any special qualities, just willingness to listen.

UGM

in the JCR

Tuesday 3rd November

FREE CHIPS WITH EVERY
IMPERIAL BURGER SOLD



at the Careers Fair

The Two Sarahs—
I don't think he can have been to any of the lectures. Most of the teachers in our department seem to be pretty boring.

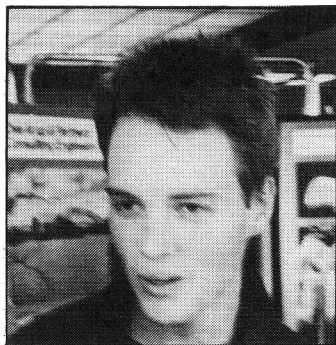


...scintillating
which one can derive from an
overwhelming flood of objective
evidence as well as from one's own
perceptions. The teaching, dynamic
and stimulating. We recruited more
students in October 1986 than ever
before. We can record yet another
modest advance in the percentage
women students (18.5%
...with 17.5% the year
...before.

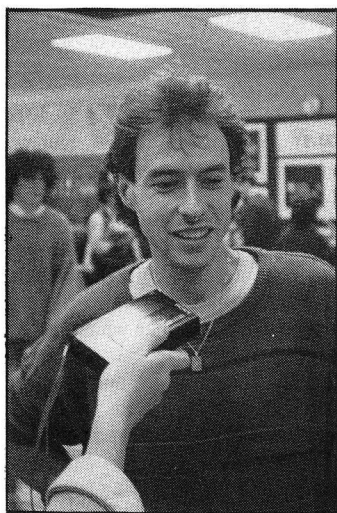
Given ...
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Our
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with

4. Do you agree with this comment made by the Rector in this year's College Annual Report?

Brian—
Ehh. I'm not a student of Imperial College!



Richard—
Well, I suppose he thinks it is! Yes, I would agree with that. Most of the departments have got experts in their fields and their enthusiasm generally comes across.



Chris—
At Imperial College? Is he really talking about the same place? Most of it (the teaching) has very little relevance to industry and as such is not interesting.

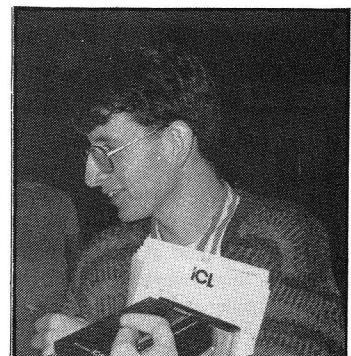


Toby—
The lecturing at IC is static and deadly dull.



Jeremy—
Some of the lecturers tend to make their subjects very boring when in fact they're not.

Phil—
Good grief! I don't know. I often go to sleep. Some lectures are absolutely boring. Even if they are interested in their subject they can't convey that interest at all.



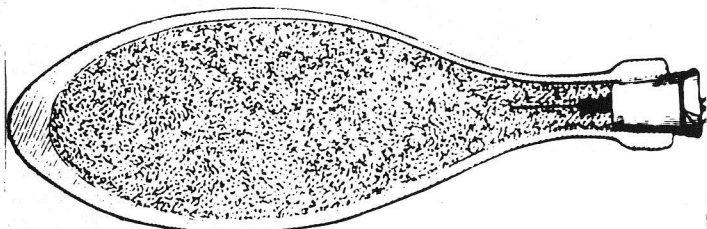
Cess Pools and Steam Rollers

The Fifth Column

The pursuit of engineering excellence and the desire to make a quick buck has prompted some wierd and wonderful innovations over the years. Who, for instance can fail to be impressed by 'captain Nortons frictional shell' or 'Johnson's improved machinery for emptying cesspools'? 'They don't make them like that anymore'—more's the pity.

In the following article, the Fifth Column takes a look at some of the potential inventions from the past, which for one reason or another didn't quite make it. The text (for the most part) and diagrams are genuine reproductions from engineering magazines printed at the turn of the century. Read on...

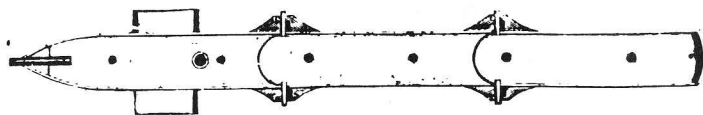
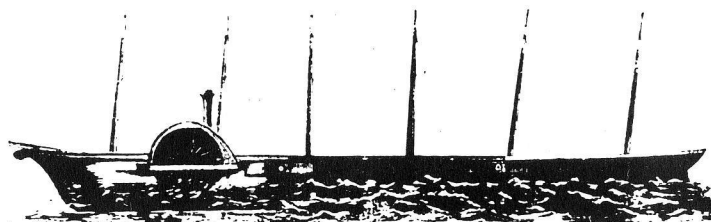
Revolutionary weapon



A REMARKABLE new weapon has been patented by researcher Captain Norton. The frictional shell is likely to have applications in blasting, house

defence, and submarine explosions. The device is constructed from an ordinary wine or soda bottle, filled with gunpowder.

Jointed ship tames the waves



MACSWENEYS revolutionary design for a jointed ship will set new standards in maritime speed and safety. The vessel, consisting of a series of hinged sections is capable of rising over waves instead of going through them and will thus be able to reach hitherto unattainable speeds. The segments can be readily disconnected in the event of an accident so that the undamaged parts of the ship can remain afloat allowing

lives and cargo to be saved.

The inventor claims that one engine module will be sufficient to operate three ships. The theory goes that at any given time there will be two ships in port either loading or unloading and one ship, equipped with the engine, out at sea. As the engine is the most expensive component in the ship, the vessel will make commercial shipping much more profitable.

Rolling along

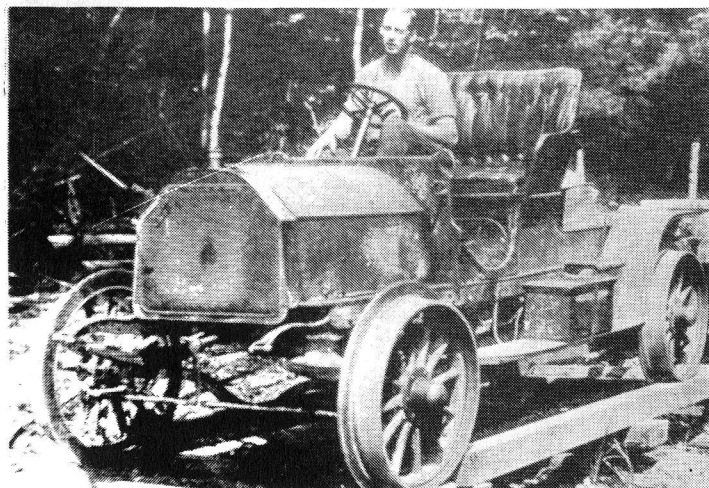


BY SLIPPING 24-in wide butt-welded tires of 1/2 in, thick steel over the regular wheels of a paving mixer, made by the Chain Belt Company, a contractor for road construction in Glenwood, Iowa, converted the mixer into a road roller at a cost of \$75. This remarkable idea allowed the firm to roll and mix at the same time.

I'm a lumberjack, okay?

A READILY-LAID track of 4 x 4 inch maple rails laid on tree-trunk ties has been used recently in Massachusetts to secure transportation at automobile speed from a portable sawmill operating in

the woods to the nearest county road, a distance of 2 miles or more. Much cheaper than road building, the track enabled an automobile to replace three trucks.



Channel Tunnel

SPEAKING at the meeting of the Institution of Mechanical Engineers at Leeds in 1883, Mr Crampton announced a new tunneling machine ideally suited to the proposed Channel Tunnel project. The machine, which can cut through chalk and other soft rocks, is powered by high pressure water and disposes of waste materials by generating a sludge which can be pumped to the surface. It is claimed that the system is not only quicker than conventional systems, but that it requires only one third of the power.

The machine employs a hydraulic motor to drive the cutting heads, as shown in the accompanying etching. The debris is thrown by a series of cups into a cylindrical revolving drum which reduces it into a sludge. When it is of the required constitution the sludge can escape through a metal grill from whence it can be pumped to the surface.

Bill Goodwin

KENSINGTON GORE SW7

CITY OF WESTMINSTER

● **APPEARING IN** *The Baron of Cheapskate* is achieving the same kind of social status within College as *Spitting Image* is in the country at large. Certain members of the College community are keen to see their name in print without anything nasty actually being said about them.

Expect to hear soon of the exploits of some of the following:

Steve Garbage, controller of Radio Cheapskate, Ms Pippa Trout, citizen in charge of other citizens' happiness (and one time Citizens' Guide to Cheapskate Editor), Chas Piano-Player, citizen in charge of other citizens' work, Alastair Hearless, stool of citizens' meetings, Iain Bore, Baron's yes-man who tells the rest of the world what a wonderful place Cheapskate is and Editor of *WetNerk*.

● **MR HOWGATE** doesn't seem to like **FELIX** very much. On hearing that the contents of the gents' toilets had seeped into the **FELIX** Print Room, he was heard to utter "Well that's not the only cr*p to be found in there".

● **GUILDS PRESIDENT** Dave Tyler's braincell has been working overtime recently. In addition to trying to persuade the Rector, Deans, and senior staff that 'they are human' and should therefore donate blood (ha ha!) he has been complaining to **FELIX** about being called just plain Mr Tyler. He is, as most people know, a weekend action-man who likes nothing more than playing shooty-shooty, bang-bang with the OTC. As such, he should be called Second Lieutenant Dave Tyler, but this takes up too much space so from now on Dave will be known as S.L.O.B.—Second Lieutenant One Braincell.

● **MR HOWGATE** has been talking about *Network*, that awfully tedious Imperial Public Relations exercise, and **FELIX**. Sources close to the President have told me that he has compared *Network* with the *Times* and **FELIX** with the *Sun*. Watch out for next week's page 3—Ian Howgate's full frontal in the Union Bar last year—unless he donates £5 to Rag of course.

THE BARON

'And furthermore', Derek was saying, 'all the citizens in the Angel Gabriel's land of sick people are so desperate to move to Cheapskate that dozens of them ring me every day to ask for my wife's autograph'.

Derek Dash, the Baron of Cheapskate, was in the middle of his farewell speech at the citizens' leaving ceremony. He had gone through the usual 'Cheapskate is wonderful' part of his speech as quickly as possible (which was a good thing since all the citizens who were leaving had heard it all before at their welcoming ceremony three years earlier) but now he was trying to *prove* to everyone just how wonderful Cheapskate was. He had been going on for hours and hours about how nice it was that the Cheapskate boundary was being extended to include Angel Gabriel's land of sick people, which was nearby. Derek was very pleased that Cheapskate was going to get bigger—he kept imagining how future generations of Cheapskate people would remember him as the Baron who conquered Angel Gabriel.

There had been lots of preparations for the expansion of Cheapskate. John Secretary had rounded up all the Baron's workers who had been sitting on their bums in the Surefield fortress (there were a lot of them) and ordered them to form lots of committees with the workers from Angel Gabriel's land of sick people. There had been lots of meetings, lots of cups of coffee, and lots of arguing about who should take the minutes. Eventually the two sides had agreed upon terms for the Cheapskate expansion, and Derek thought that everything was going very well.

Unfortunately, all the Angel Gabriel citizens were not quite as pleased about being swallowed up as part of Cheapskate as Derek seemed to think they were. The leader of the Angel Gabriel citizens had been elected because he had promised not to talk to the citizens at Cheapskate. All the head citizens at Cheapskate were very upset that nobody wanted to talk to them, but thought that it was probably very sensible of the Angel Gabriel Head Citizen not to risk talking to Whygate. Everyone went out of their way to avoid talking to Whygate if at all possible, chiefly because they all knew that it would be an hour or two before they could get a word in edgeways.

At the moment, Whygate was not particularly concerned about the Cheapskate expansion, or even about the fact that nobody wanted to talk to him. For the past two weeks he had spent nearly all his time studying the *Financial Times* and pretending that he knew all about the stock market. He was already planning to invest a hundred thousand pounds of the money from Gravington rocks; half in a company which had just developed an insoluble suppository and half in Halifax Town Football Club. Whygate knew when he was on to a good thing!

Meanwhile, in another part of Cheapskate, Dave Braincell, one of Cheapskate's three clowns and the leader of the lumps of metal worshippers, was explaining to his new deputy how to do her job. His new deputy was called Tanya Grope, and she had won her election for the simple reason that she was a female citizen. Whenever a female citizen stood for election as a leader of the lumps of metal worshippers she was always sure to win. This was because all the citizens were desperately sex starved, and seemed to think that voting for a female citizen would impress the other female citizens. As well as being sex-starved, the lumps of metal worshippers were very thick....

How many lumps of metal worshippers does it take to change a light bulb?

How is Dave Braincell getting on with Tanya Grope?

Will the Baron be struck down by Angel Gabriel?

Will Takeiteasy appear in the citizen's office this week?

Find out in the next episode of 'The Baron of Cheapskate'.



● **CHARLES 'TAKE-IT-EASY' JACKSON**, Union Hon Sec seems to have been responsible for adding some flavour to the Union Bar cellar earlier this week.

While being overly helpful one evening tapping a barrel of Royal Oak, he decided to remove a core plug in the barrel by hitting it with a screwdriver. The beer being quite old had developed some pressure. The sudden release of gas caused a geyser of beer, hops and yeast spraying all over the ceiling and walls of the recently cleaned cellar. Takeiteasy ran away 'to collect his coat'. With his wet weather gear adoned, he braved the gusting barrel, and put a new plug in the barrel. Mr Jackson said 'it was quite funny'.

● **IT'S TIME TO START** speculating who's going to stand for the top three Union posts next term. Several candidates have been practising their handshakes and baby kissing. The strong contenders for ICU President include the incredibly awful Alistair Seymour who has been most notable for his streak around the Albert Hall and Alistair Birch who, after having External Affairs whisked away from him, has turned his sights to Internal Affairs instead. My name has also been mentioned in closed circles as a potential candidate. I'll have to see what my personal tutor has to say about that one. Not many mugs would do Deputy President especially having to follow in the steps of Peirce and Rose, it's odds on that Pub Board Stool Chris Martin will finally take the plunge after six years of umming and arring. Only dorks stand for Hon Sec. There seems to be a lot around the Union at the moment so that post should be hotly contested.

Chris Jones

Late News

● **THERE HAS BEEN** a serious leak from Silwood Park. The Weed Science Department have made a significant break-through in managing to create a weed with human characteristics which has escaped to South Kensington. It has taken up residence in the Deputy President's office. The weed is believed to be a strain of the Rose family and must not be approached without suitable precautions being taken. Pest management and the spraying laboratory are urgently looking into the matter.

THE NOBEL PRIZES 1987

UNDER
MICRO



THE
SCOPE

by Steve Black

This week the reports are all about the Nobel prizes for outstanding smartness in Physics, Chemistry and Medicine. Even two pages is not enough to do justice to the work in any of these fields, so there may be features on some of them later. If, for example, some kind Physicist would care to do a survey of what we know about the new superconductors, it would make a wonderful feature—and they would get their name in print. Other in-depth articles on specific topics of general interest will be forthcoming soon.

I'm sorry I've gone on at such length about Chemistry, but it is what I know about: if you want your subject to fill up the space then become a contributor!

Even if you don't want to contribute, we welcome your criticisms, suggestions and ideas for things to report in this column. Send them to the FELIX Office or to my letter rack in the Chemistry foyer.

The medicine prize: shuffling genes

A Japanese scientist who did his important work in Switzerland and who now works in Boston won the medicine prize for his work on the immune system.

Susumu Tonegawa won the prize for working out the details of how the human immune system is able to produce such a variety of antibodies. This had been a big problem for immunologists for a long time.

There are only a limited number of chromosomes in a human gene, yet the immune system seems to be able to create a virtually unlimited variety of antibodies to fight off nasties in the bloodstream. Antibodies are just proteins and proteins are coded by the DNA of the genes, so the source of

the variety was a mystery.

In experiments with the antibody genes in mouse cells, involving comparison of cells from mice embryos and from mature mice, Tonegawa was able to show that the genes are 'shuffled' randomly during development. The shuffling produces a vast variety of possible antibodies, enough to fight off most invading horrors.

The elegant details of his mechanism have illuminated how it is possible for an apparently wasteful process to achieve useful results. They also show how simple, natural systems can show a staggering ability to adapt themselves to their environment.

The fastest physics prize on record?

Nobel prizes are supposed to go to the most prestigious work in the given field in the year of the award. This year's Physics prize is just about the first time that that has happened: normally you have to stay in the race for twenty years after hitting the jackpot before you get the prize.

The news only broke last September that the superconductivity temperature record had been trounced by Bendortz and Muller at the IBM labs in Zurich. This started the great bandwagon that has led to the recognition of their work as one of the most important new discoveries in the last 50 years of Physics.

Persistence pays off

IBM had a big project to develop superfast computers about ten years ago. The parts that did the work were based on Josephson junctions (which involve two superconducting bits separated by a sandwich of insulator about 15 atoms thick). Computer widgets fashioned from Josephson junctions are very much faster than the same widgets made in conventional silicon. Unfortunately, they only work at below about 20 Kelvin (about -250°C). This means that the CPU of the computer has to be cooled by liquid helium. IBM gave up the project because it was simply too difficult to arrange to keep the computer cool at a reasonable price.

However, two of IBM's bright researchers (Georg Bendortz and Alex Müller) maintained an interest in superconducting materials. As long ago as 1979, Müller was getting pissed off with the conventional metal alloys that superconductors were made of. There seemed to be no way to increase the superconducting transition temperature which was stuck at about 23K: no compounds were superconducting above that temperature. They decided to look at

metal oxides, which is strange since they are normally insulators. However, they obviously knew what they were doing, since their first experiment pushed that temperature to 35K, the biggest jump since the discovery of superconductivity.

The group of compounds they picked (modified barium copper oxide ceramics) proved to be an inspired choice, and rapid modifications were made by them and by others to push the record temperature to above 90K.

The work was not really a one-off discovery, but represented a deep insight into solid state physics, backed up by years of previous work on other materials. This is why the reward is not really the fastest ever: the group has been working towards its goal for years.

The important thing about the new compounds is that they are superconducting at liquid nitrogen temperatures. It is extremely cheap and easy to handle liquid nitrogen and the compounds themselves are also cheap and easy to make (though they are not readily made into anything useful as yet). They seem to mark an amazing democratisation of high-tech physics: previously only wealthy and well-equipped laboratories could deal with superconductors, now anybody can have them.

It is strange that a discovery that has come out of a wealthy company research lab should make it possible for the impoverished universities to get into important research: normally the company labs just make us jealous.

The discovery of these new compounds is likely to lead to more prizes soon, because nobody knows why they are superconductors. The first person to think of a good mechanism will deserve the next Nobel prize.

Selective seduction wins the chemistry prize

This year's prize is shared between three people for their work on some compounds that are very fussy about what other sorts of molecules they associate with. These compounds are useful because they can be used to selectively encourage certain difficult reactions and they can be used to discriminate, and therefore separate, certain very similar metals in solution. The three people who got the prize are: Charles Pedersen (who worked for DuPont central research labs in Delaware); Donald Cram (University of California at Los Angeles); and Jean-Marie Lehn (who is French).

The story started when Pedersen was trying to make some industrially useful chemical. Because of some gunk in his starting materials, he produced (as well as what he wanted) a small yield of crystalline impurity with unusual properties. Most people would have thrown the annoying side-product away, and used purer starting materials next time, but most people don't win Nobel prizes. Pedersen was a curious man and he investigated the strange new compound. It turned out to be a compound now called dibenzo (18)crown-6 which has some strange properties.

The structure of the compound is the key to its strange behaviour. Once Pedersen had realised what the structure was, he was able to design more similar compounds to perform different chemical roles. Cram was a consultant for DuPont at the time, and he realised that the compounds could be used to do some very selective reactions.

The simplest of the compounds are rings containing CH₂ groups and some oxygens. (18)crown-6 has an 18-membered ring with 12 CH₂ groups and 6 oxygens, hence the name. The compounds are called crown ethers because, in their three-dimensional structures, they often look like the things royalty put on their heads. More complex versions of the compounds were devised by Lehn which contain nitrogens and can therefore have three interlocking rings

(this creates a cavity more like a glove than a ring). These compounds are called cryptands and hold on to metal ions even more tightly than the crown ethers. Even more complex compounds have been devised since with structures that have to be seen to be believed.

Adulterous but fussy molecules

The unusual chemical properties of the compounds result from their adulterous (but non-promiscuous) relationships with certain charged ions and molecules in solution. They are able to seduce other specific molecules away from their rightful spouses and encourage them to set up new homes in solution.

Normally in chemistry it is difficult to coax charged things into solution in neutral inert solvents. The trouble is that ions in solids such as common salt (consisting of Na⁺ and Cl⁻) are happily married, and need some very strong attractant to get them to split up (they need something attracted to them more strongly than they are attracted to the crystal lattice). Water can dissolve some salt because the

highly dipolar water molecules are strongly attracted to the ions and can therefore crowd round them and attract them out of the crystal lattice.

Less polar solvents have great difficulty in attracting the ions from the lattice, so you can't get salt to dissolve in benzene (which has no dipole to keep the ions happy). Most common organic solvents have this problem, which is a pain because in some compounds that are not soluble in water.

In organic solvents the rule is like dissolves like, so compounds that are mostly carbons and hydrogens will dissolve in solvents that are mostly carbons and hydrogens. This is why crown ethers are so useful. Inside the ring they are adulterously attractive to things like potassium ions (because of the dipoles caused by the presence of oxygens on the ring) but on the outside they just look like any old hydrocarbon because all the solvent can see is the CH₂ groups. So it is possible to sneak ionic species into previously inaccessible places.

But the particular quality of crown ethers that is useful is their selectivity. The size of the hole decides which ions fit inside. And, when something fits, it fits really tightly: for example, potassium ions just cannot resist 18-crown-6. In an organic solvent in contact with a salt, so many potassiums are lured from the crystals that the previous spouses (counter ions in chemical jargon) of the potassium ions will also come into solution in a futile attempt to regain their lost loves, so the crystals will dissolve.

The forsaken loves of the potassium ions can be put to good use. For

example, the permanganate ions (MnO₄⁻) from potassium permanganate or the hydroxide ions from potassium hydroxide, will wander naked searching for their lost loves in non-polar solutions containing 18-crown-6. These ions are agitated enough to participate in reactions that cannot normally be done in such solutions.

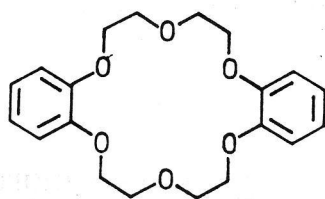
But crown ethers are very fussy. Solutions of mixed ions can be separated by the use of a crown ether that complexes only one component in the mixture. 15-crown-6 will cling to sodium ions for dear life but will tend to leave potassium ions alone (they are slightly too large to fit in the hole, but otherwise they are very similar to sodium ions). This can be very useful industrially in the separation of mixtures of similar ions.

Extremely fussy molecules

Compounds similar to crown ethers have become increasingly important in the years since the compounds were first noticed. Their cavities have been designed to seduce many different types of compound. Work involving Imperial College, Sheffield University and ICI has shown how paraquat (the compound that kills weeds when you put it on your garden, but kills people when you store it in lemonade bottles) can be held in the cavity of bisparaphenylene(34)crown-10 (there will hopefully be a report on this work in FELIX soon). The holes inside some of the compounds have been designed to take only one mirror image of some reacting molecules, thereby promoting reactions of only one isomer giving biologically useful products (when molecules can be either left- or right-handed, nature always sticks with just one hand). This is very useful in the drug industry where, for many drugs, only one optical isomer is active (for example, only one of the two isomers of dopamine, the compound used to treat Parkinson's Disease, is useful).

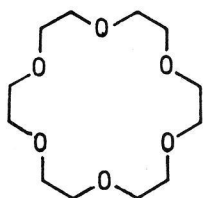
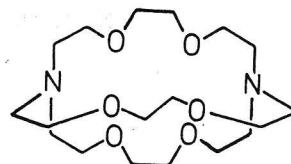
In building molecules with such abilities to discriminate between other similar molecules, chemists are beginning to learn how to mimick nature. Enzymes (nature's chemical companies) can tell the difference between very similar molecules and can produce products containing molecules of only one handedness. It would make some important chemicals a lot cheaper if we could copy nature's methods.

We should never forget that none of this chemistry would have been done if a single chemist had not been curious. So curiosity may sometimes kill the cat, but it feeds the chemist.



(18)crown-6
Potassium ions can't resist its embrace

Dibenzo(18)crown-6
The first crown ether to be discovered



2-2-2 cryptand—fits like a glove

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Buffet supper provided

Please sign up at your careers service and collect an information sheet.
Numbers limited to around 60.



Terminal addiction

Imagine accessing books in the library without even leaving your seat, let alone walking across to the Lyon Playfair... reading the latest college news and information kept up-to-date as you watch... playing an interactive game with people you've never met from all over the country... Not a vision of University life in the future—all this available here at IC and now.

Anyone who has ever used the central College Cyber or Vax computers will have passed (unwittingly or otherwise) through the College computer network ICPAD. As well as linking all departments to the the central machines, ICPAD supports a number of more obscure services and has links all over the country. This article describes three such services, one on-campus and two off, which are available free of charge from most computer terminals in College.

LON.LIB

The perfect antidote to a long book list, the London Libraries system allows you to check for availability of books and other material in libraries here at IC. A book can be identified exactly by quoting an ISBN or LCCARD number, or it can be found by browsing through given an author or title.

The computer will tell you roughly in which party of the library the book is to be found, what type the book is (reference, short term loan, long term loan etc.) and whether the book is in the library at the moment you enquire.

In case the particular book you want is not in the library, the system also checks in all the other participating university libraries in London. Most useful of these is ULL, the University of London Library at Senate House, Malet Street. All students have an automatic right of access to this library—just bring along your yellow IC library card. Using LON.LIB you can confirm that the book you want is available in the library before jumping on the tube to fetch it.

To connect to the system type C then LON.LIB and press RETURN. The terminal will bleep, at which point you should press RETURN again. The system is totally menu

driven requiring single character responses such as A for Author search. Example 1 shows a short session where LON.LIB is used to enquire about a book called ELECTRODE KINETICS. Both the copies at IC are out, but there is a copy at ULL which is available.

The system is not totally foolproof. Although all the books at ULL are on the computer, not everything at IC has yet been registered. In the unlikely case that the book you are looking for has not been properly registered, at best the computer will say 'No Copies Available'... at worst it may even say a book is in the library without checking simply because it does not know any better.

LON.LIB is a powerful system allowing anyone direct access to the libraries' records. However it does not give much of an idea of the content of the book there is no real alternative to going to the shelf and leafing through the book... yet.

ICRAD

ICRAD is the News and Information service run by IC Radio in Southside. It already contains an impressive amount of information even though it has only been running just over a week. The theory behind its launch was that all the information currently read out on air on IC Radio should also be made available from any computer terminal in college.

The main menu is split into four main sections—News, Music, Information and Diary. The College news section is kept up-to-date to the minute, but the stories are necessarily shorter and contain less detail than those found in FELIX. The Music area will allow anyone to browse through IC Radio's extensive record catalogue, although that part is not working yet.

The Information section shows promise of building up into an large college database with sections maintained by college staff and student societies. Topics as diverse as the Humanities Lunchtime Programme and Department of Computing Society News are all to be found here. IC Radio are particularly keen to encourage more information providers to come forward.

Finally the Diary section advertises events in the College and further

THE AUTHOR—ALASTAIR BIRCH, D.C.

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CNPAD C
Enter CR to use the name T or enter new name.ad-
dress: LON.LIB
Call setup successful.
Entering data transfer mode.
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University of London COMMUNITY ACCESS
MODULE
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If you need instructions press the Y key, otherwise
press the N key. Explanations last changed July 1985
N
```

```
A : Author Search      T : Title Search
I : ISBN Search       L : LCCARD no Search
                        E : End session
```

```
Enter Command : T
ENTER Title : ELECTRODE KINETICS
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No. of direct matches 2
Book No. 1 Title : Electrode kinetics
      Author : Albery, W J
Book No. 2 Title : Electrode kinetics
      Author : Bamford, C H
Book No. 3 Title : Electrode reactions
      Author :
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X : Return to Main Menu F : Browse forwards
@ : Details of book      B : Browse backwards
A : Author Search       T : Title Search
I : ISBN Search         L : LCCARD no Search
E : End session
Enter Command : I
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Title : Electrode kinetics
Author : Albery, W J
ISBN : 0-19-855433-8
```

Cpy	Location	Type	Status
1	QMC	MAIN	In Library
2	ULL 3	MONO	In Library
3	IC 54	T	Unavailable
4	IC 54	T	Unavailable

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X : Return to Main Menu F : Browse forwards
@ : Details of book      B : Browse backwards
M : More Copies         A : Author Search
T : Title Search        I : ISBN Search
L : LCCARD no Search    E : End session
Enter Command : E
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You have been on for 1 MINS. and you looked at 4
items and/or authors
Signed off
Invited to disconnect.
```

afield, plus also a useful cinema guide giving details of what's on locally.

To use ICRAD type C then ICRAD and press RETURN. If you get the message 'SERVICE IS BUSY' someone else is using the service—at present there is only one line but there are plans to increase this.

ICRAD is totally menu based requiring single digit responses, but you can select a page directly by typing '*' then a page number followed by RETURN. Table 1 gives a few useful page numbers on ICRAD.

MUD

Multi User Dungeon is a computer-based fantasy game. You adopt the persona of a Hobbit-style fictional character and wander round the dungeons solving puzzles to collect points. If you 'meet' another player, it is possible to converse—or you might even try assassination! The ultimate aim of the game is to score enough points to become a Wizard, whose powers are practically unlimited.

Getting through to MUD is not easy. It is only available during 'off

Table 1—Useful Page Numbers on ICRAD

102	College News
3042	DoCSoc News
305	For Sale/Wanted
50	IC Radio Programme Schedule
4011	Local Cinema Guide
0	Main Index
3031	Name Server Mnemonics
3032	Sending Electronic Mail Abroad

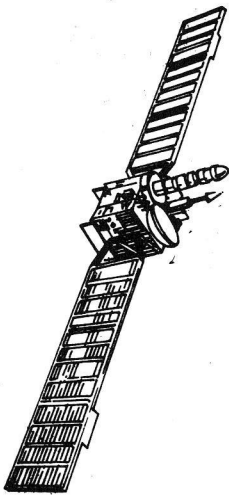
peak' hours—that is 2am-7pm weekdays and 2am-8am at weekends.

MUD is based at Essex University. To connect type C then X25.00004960000001 and press RETURN. Type HELP MUD for more information on the game including the user id and password, and HELP LOGIN for details on how to log in to the system.

GAINING ACCESS TO PAD

Even if you do not use computers in your course, your department will probably allow you access to their PAD terminals (if they have any). If you have any difficulty there are a number in the Computer Centre on the fourth floor of Mech Eng.

THE HIGH GROUND



Satellite technology has given a new twist to the arms race. Spies in the sky increasingly dictate nuclear strategy. Dave Burns takes a look at the race to control the Final Frontier.

Nothing New

One of the major principles of warfare through the ages has been one tactical advantage of possession of the higher ground. Once the space race had commenced in the fifties, it soon became apparent that the ability to place satellites in orbit around the Earth gave those nations with such advanced technology the use of the ultimate in high ground. It was inevitable that the arms race would spread into space.

Since 1958 more than 2200 satellites with actual or potential military uses have been launched. Once launched, the satellite itself becomes a target, leading directly to the development of anti-satellite weapons. In turn these anti-satellite weapons have immediately complicated the arms negotiation situation by becoming potential anti-ballistic missile systems.

Some 75% of all satellites are launched for military purposes. The launch rates for both the US and the Soviet Union have become constant over the last few years, indicating that the two super powers now have as much satellite capability as they require. What then are the uses of these satellites, and what are the prospects for future military expansion into the final frontier?

Nuclear Strategy

Advances in space technology have included improvements in space based sensors for surveillance, communications, command and control system, and space based navigation aids to enhance the accuracies of delivery systems for both conventional and nuclear weapons systems. Such advances have led to changes in tactical doctrines for nuclear war. Over past decades nuclear doctrine evolved from the idea of Mutually Assured Destruction, the infamous MAD policy.

This has now been transformed into the flexible response strategy which allows for the maintenance of MAD, as well as the ability to counter attack with 'flexible, controlled use of strategic weapons against appropriate targets for any attack at any level of conflict'. This is known as the Countervailing Strategy, and is born out of the high accuracies of weapons, the precise knowledge of targets, and increased warning of attack made possible by military systems in space.

The flexible response doctrine requires good command, communication, control and intelligence (C³I) systems. The way in which satellites fulfil these roles is discussed below.

Reconnaissance

The US budget for reconnaissance and surveillance from space was thought to be about £1.3 billion in 1986. The importance of eyes in the sky is enormous. The genre started with the US Air Force Big Bird satellites. These high resolution photographic reconnaissance satellites have orbital lifetimes of up to 180 days. More recent KH-11 satellites of the US have lifetimes of up to 1166 days. With the vast array of reconnaissance satellites in orbit, the time intervals between observations of a point on Earth can be drastically reduced. The general pattern now is that Big Bird satellites are sent up to investigate areas indicated to be of particular interest by the KH-11 satellites. Photographic satellite reconnaissance can reveal troop movements, military installations, even new designs of Soviet Aircraft.

In contrast the Soviet Union have relatively few long lived reconnaissance satellites, most have a life of about 14 days.

While much is known about photographic satellites, comparatively little is known about current

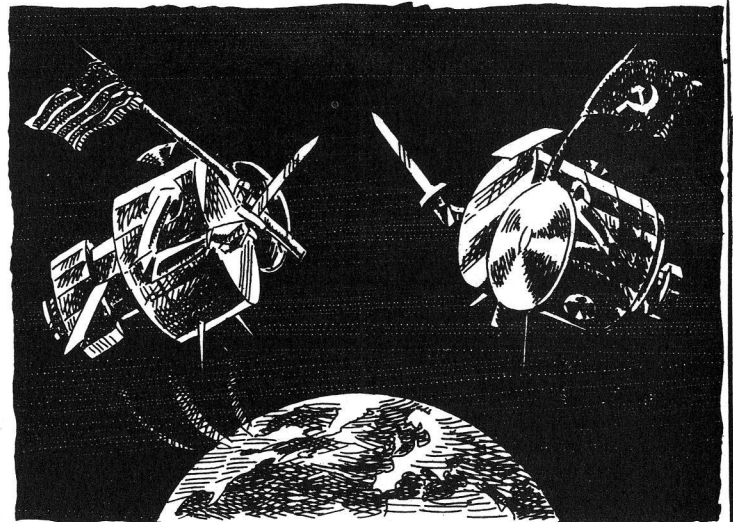
electronic reconnaissance. These satellites are designed to be military ears in space. They monitor radio signals generated by the other side's military activity throughout the world. This covers everything from military communications between bases, early warning radars, air defence and missile radars to missile testing, new radars, in short, all types of electromagnetic emission. Here, the source of signals can be located by navigation satellites, using methods resembling hyperbolic navigation in reverse. Instead of using four transmitters on four satellites to locate an object, four receivers on four satellites can locate the position of an unknown transmitter on Earth.

Ocean Surveillance

Another element of C³I is the use of ocean surveillance and oceanographic satellites. Ocean surveillance satellites are used to track naval movements, while oceanographic satellites are of enormous help in increasing understanding of various ocean properties, knowledge which is invaluable in anti-submarine warfare. Ocean satellites also have a subsidiary function in detecting ocean launched missiles.

Explosion Detection

The USA has launched satellites for the specific detection of nuclear explosions in the atmosphere and in outer space. It is now intended that the NAVSTAR location system will carry sensors of the Integrated Operational Nuclear Detection System (IONDS) to provide damage assessment both within ones own country and within enemy territory during and after a nuclear attack. This is designed to enhance the early warning, size assessment and data on attacked targets in order to give greater flexibility of response.



Communications

Communications satellites form only part of the elaborate defence communications systems of the military. However, the US is placing greater emphasis on satellite communications, particularly with nuclear forces. The existing space component in the US communications system consists of transponders aboard satellites such as the Fleet Satellite Communications satellites (FLTSATCOM), as well as other satellites in polar orbits.

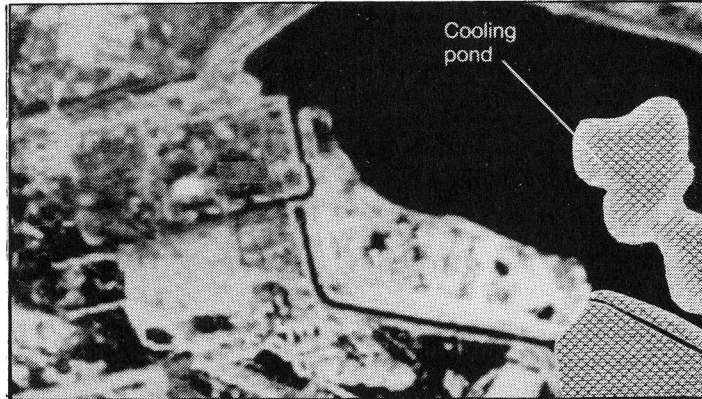
Since satellites are becoming an essential part of C³I, it has become important to make them survivable. The US Air force has proposed a satellite for this specific purpose, called STRATSAT, which would orbit at an altitude of about 203 720 km in order to increase its survivability. It would also include extra resistance to jamming, and a manoeuvring ability. Although the satellite itself may become more resistant to attack its ground facilities remain as vulnerable. It is also worthy of note that all the satellites electrical systems are vulnerable to nuclear attack even without a direct hit. Pulses of neutrons and gamma rays seriously affect semi-conductor devices. It is because of this that strenuous efforts are being made to harden both the ground and space elements of C³I against nuclear attack.

Anti-Satellite Systems ASAT

With so much time and effort being devoted to protecting one's own satellites, it is hardly surprising that an equal amount of time is being spent determining how to destroy the opposition's satellites.

The Soviet Union's efforts in this direction centre around the less than subtle approach of having a satellite move alongside its target, before blowing up. This method suffers from being a costly and strictly once only usage of a satellite. It does have the advantage of being very difficult to detect. It is almost impossible to know if a satellite is, in effect, a mine until it's too late.

The US takes a more direct approach with its anti-satellite weapons, relying on miniature homing vehicles launched on a missile from high altitude, about 20km. It can be used as a direct ascent system against any satellite in any orbital inclination and this combined with its small size makes it very survivable. Initial trials with the system from an F-15 fighter have achieved reasonable results.



Chernobyl reactor complex as photographed by Landsat 5.
Above—Hot water in ponds before disaster.
Below—After reactors shut down.

Recent Developments

The 1983 Korean Airline incident was linked to US satellite activity over the area at the same time. The US electronic reconnaissance satellite 1982-41C was over the Kamchatka Peninsula at the same time as the airliner entered Soviet airspace. It has been suggested, more frequently by the Soviets, that the whole incident was an exercise by the US to monitor Soviet reactions.

Soviet ocean satellite launches have increased their knowledge of the polar ice cap and this has led directly to the Soviet Union developing the capability to launch submarine launched ballistic missiles through the Arctic ice cap.

The Soviet Union has also tried to increase the duration of flight for its reconnaissance satellites. They had been experiencing problems with satellite recovery, but are now using digital image transmission to overcome this.

Space Weapons

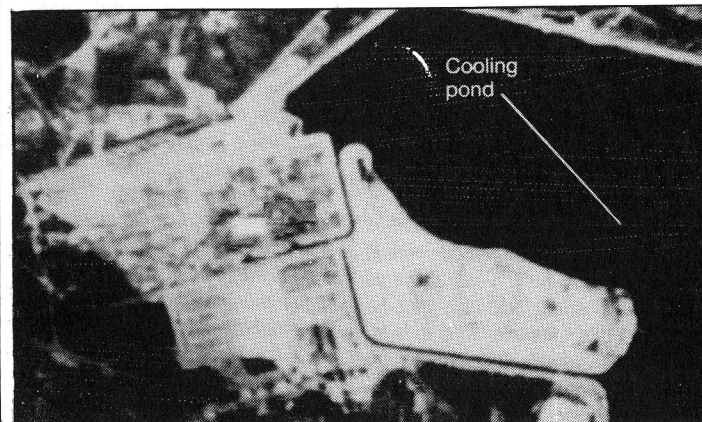
The strategic importance of satellites has spurred-on research into even more elaborate methods of destroying them. This has burgeoned into the so-called Star Wars system, the intent being to place weapons in space to deprive the opposition of the high

ground. Huge amounts of expenditure is now being devoted to this aim by both super powers. Current space weapons can be divided into two groups, kinetic energy and directed-energy weapons. KE weapons derive their destructive energy from the momentum of a propelled object. In directed energy weapons, energy in the form of electromagnetic beams or particle beams is the destructive element.

Kinetic Energy

Two types of KE weapon are being investigated—the so called mass driver and the electromagnetic rail gun. The mass driver was first proposed as early as 1966. A travelling electromagnetic wave is used to accelerate a mass which is preferable ferromagnetic or superconducting. The mass is accelerated through a series of coils while held in magnetic levitation. The greatest disadvantage is the comparatively modest accelerations produced at each step. Currently, to accelerate a mass of 0.1g to 150 km/s would require a 2km accelerator.

The more promising device is called the rail gun. A current is allowed to flow down two rails, with a partially conducting armature placed perpendicularly across the rails. The projectile is placed in front of this.



However, the mass of the armature limits the acceleration. This has been overcome by using a plasma, caused by electrical discharge between the rails, as the armature. Various more complex methods of increasing the efficiency of these weapons are under investigation. However, none of these weapons have the immediate prospect of becoming space based, and their extreme cost has directed the major space weapon efforts in the field of beam weapons.

Directed-Energy Weapons

In the field of directed-energy weapons, laser beam weapons are holding centre stage.

Among chemical lasers, the chemical oxygen iodine laser (COIL) seems suitable as a weapon. The COIL transmits at wavelengths of 1.3 m. In such a laser, energy is transferred from excited oxygen molecules produced by a chemical reaction. Its main advantage is that easily handled liquid fuel can be used. Plans to build a 50kW COIL are underway.

X-ray lasers make a very attractive space weapon prospect because of their short wavelength. Two major problems complicate their application. A considerable amount of energy has to be used to raise the energy levels in the atom. Second, the probability of stimulated emission decreases sharply as the wavelength of radiation decreases.

A further complication is that the lifetime of excited states is proportional to the wavelength squared. This means that atoms would stay in the excited state for as little as 10⁻¹³s. The necessary conditions can best be created by use of a powerful pulse of x-rays generated from a nuclear explosion.

Clearly once again, this is a once only use weapon. The problems of beam direction and multiplicity would seem almost insurmountable. However, research continues.

Arms Negotiation

The proliferation of satellites with military uses, and the consequent rush to develop space weapons to destroy them, has produced a paradox. The current state of military satellite technology makes verification of arms limitation treaties a relatively simple affair. There is just nowhere to hide anymore. Unfortunately, the associated rush to produce the so-called Star Wars systems on both sides has held up the very same process of arms limitation.

While satellites hold both the means to wage nuclear war and the means to prevent it, there can be no easy solution to the problem.

OPINION

Spiritual matters

Working late one evening a PhD student broke an expensive part of some equipment he was using. The damage wasn't obvious and he left the machine as if nothing had happened. He arrived in some trepidation the next day ready to explain the matter to his supervisor. However, a colleague had come in early, started to use this same machine, and on discovering it was broken had considered herself responsible. The supervisor was furious with her because of the expense and delay involved in repairing the result of careless stupidity, as he saw it. On finding he was unsuspected, the real culprit let things lie.

Does it go without saying that he ought to have owned up? In 'Soul Searching' (FELIX 780) R G Fincher seems inclined to dismiss the existence of human soul. In later week's FELIX Steve Black and David Ashforth suggest that our soul is encoded entirely in the molecular composition of our brains. I consider here that the 'ought' in our decision making carries implications of a supernatural basis for firstly our free will and secondly for the origin of what is right or wrong in our actions—both of which are related to the soul (or spirit) and to what it is to be human.

What is going on in the mind when we make a moral decision? Psychologically and neurologically the mind is very complex, but fundamentally it is not. The physics and chemistry of the mind must be presumed to involve the ordinary stuff of protons, neutrons and electrons engaged in attractive and repulsive forces, clumped together, spinning, vibrating, smashing into one another and rearranging (not to put it too technically!). At any instance in time during the making of a decision, the mind will have a given physical arrangement. An instant later there is a new arrangement, as the decision progresses. What links the two states in time? Suppose the link is entirely a cause-effect circle, such that any one physical state of the mind is wholly dependent upon the previous state and wholly the cause of the next, then the progression of the decision-making process is an inevitable consequence of the first state. This could be traced

back to our conception. What we are now would have to be an inevitable consequence of what we were at our conception, as shaped by interaction with our environment. Our environment—including other people and the expressions of their minds, such as conversation, books, television, music, etc—would also be completely determined by its physics and chemistry. We must remember that all the higher level descriptions of human behaviour, such as intelligence theory, psychology and sociology, ride on the back of the underlying physics and chemistry which expresses them; fundamentally they are controlled, not controlling.

If, then, only cause-effect (and possibly also random) processes are at work in the physical universe, there can be no free will. Give up your seat on a bus for an old lady—inevitable (or random); marry Jane rather than Jan or Joan—inevitable; let a colleague in your lab carry the can for something you have done—inevitable. No blame, no praise, is attributable to any action. This, however, does not tally with our experience of what is human at its highest level, or indeed the way any of us live. At the centre of what is human, or personal if you like, we seem to exercise a supernatural control within our minds over their purely physical nature. This supernatural element is without prior cause (it is baseless assumption of our 'scientific' age that everything has a cause), it stands alone as an origin of cause and is in essence what we are. We are, then, determining and responsible, rather than determined. In this sense we are like God.

It is because of this supernatural free will that we are ready to blame others for what they do—they are responsible. The student who dropped his lab partner in it, had the ability freely to choose to own up. He ought to have owned up. But here is a second problem, why ought he to have owned up? What possible reason could one give him? I can think of none. One might tell him that he wouldn't like the same done to him. True, but so what?—it constitutes no reason for not allowing it to happen to someone else. You might tell him that it is for the good of society that people behave truthfully and decently

toward one another. He could very reasonably reply, 'stuff society'. That which we feel we ought to do is very easily squeezed out of existence between the self interest of our reason and our free will! If we do anything of benefit to others it need only be out of self interest, perhaps so that they will like us and reciprocate.

Yet in practice that is a very cynical view. The world is full of people who do selfless acts as if there were some independent goodness which stood without reference to themselves or others, but which they endorse. We often behave as though there were a way in which we ought to live, and yet we can find no reason why it is right. I believe this rightness to be God's will, God's love, part of who God is. It doesn't enlarge our ego to perceive that any good which we do is only a response to God's will for us, all the glory passes to him. That might go some way to explaining why so many people are not too happy with this line of argument, and are prepared to go on holding inconsistently to a set of principles which they can in no way validate.

There is nothing behind God. Goodness originates in God's nature. The very possibility of the idea of creation is in God. In his personal free will he has formed a universe with causal physical structure so that our actions are not empty but have real consequence, in favour of or against his goodness. He himself lives as a man in Jesus. Jesus declared, 'I and the Father are one', and some of the Jews took up stones to kill him for blasphemy saying 'although you are a man you claim to be God' (John Ch 10). Jesus' disarming defence was to quote from the Old Testament 'I (God) say, 'you are gods''—God can live as a man because every man is like God in having freewill, in being and originator of cause.

Our supernatural free-will responsibility to do what is right is fundamental to Christian belief, as is our failure to do it. Also fundamental is the substitutionary bearing of the consequences of our failure by Christ in his death on the cross, and his resurrection to life as a demonstration of God's power to give us new life after our death.

P Baker.



Upbeat

●Kicking off the week on the Beeb there is a second chance to see the final part of the *Biography of George Balanchine* (BBC2, Sat 7.25pm), founder of the New York Classical Ballet, and, arguably the greatest choreographer to have ever worked in the States. Even if you missed the first part this is still worth watching just to see what ballet is all about.

●Once that's over tune to BBC1 to catch the first showing on British TV of Stephen King's *Cat's Eye* (BBC1, Sat 10.40pm). A cat that hears voices and monsters lurking behind skirting boards. Mmmm.

●Formula One fans will want to be up with the lark at 7.15am (BBC2, Sunday) to watch the the Japanese Grand Prix. More civilised viewers can see the highlights that evening at 10.05pm.

●*Review* (BBC2, Sunday, 5.50pm) contains a review of *Rolling Stone*, the US arts and media magazine which has just celebrated 20 years of reporting American pop culture and all with the same editors.

●The return of...The sequel to...Here it is again...*Spitting Image* is back (ITV, Sunday, 10pm).

●First of a new series of science fiction films on BBC is *The Day The Earth Stood Still* (BBC2, Monday, 6.00pm). Produced in 1951 in black and white it still is one of the SF classics and, funnily enough, doesn't seem all that dated. Watch out for other films in the series *Future Worlds*.

●Pick of the week must be *After Pilkington* (BBC1, Tuesday, 9.30pm). A repeat showing of an excellent film, starring Miranda Richardson (who is brill!), that won Europe's highest TV award, the Prix Italia. Wonderful quirky plot, excellent acting, what more can I say?

●Finally, two good documentaries this week. *Is There Anyone There?* has psychologist Nicholas Humphrey taking a look, on halloween night, at the paranormal with the likes of Uri Geller and Carl Sagon giving both sides of the story.

●Later in the week *40 Minutes* has a programme called *Convictions*. What makes people criminals? Is punishment the answer? The Jales brothers are crooks and spend most of their time in jail. As they await trial once again, they talk about their lives...

Chris Martin

What's On

FRIDAY

Circuit Training12.30pm.
Union Gym with Cross Country and Athletics Club. Everyone welcome. Free. See R Dilmaghavian.

Rag Meeting12.35pm.
Union Lounge. To discuss Rag Week.

Orienteering12.30pm.
Brown/Green Committee Room (top floor of Union Building). Arrangements for following Sunday's event.

GLC Meeting1.00pm.
Senior Common Room. A chance to join the Club if you missed last Wednesday's meeting and sign up for Old Bailey visit.

Biotechnology Society4.30pm.
Cheese and wine information on lectures and social events.

5-a-side Football5.00pm.
Volleyball Court. See Islamic Society

IC Radio8.00pm.
Windy Miller's Astral Garden plays naff records from the 70s. 'The records you love to hate'.

Curry Soc9.00pm.
Trip to 'The Paramount'. New members welcome.

SATURDAY

Shotokan Karate10.00am.
Southside Gym. Beginners welcome. £1.

SUNDAY

Bo Goes to Brighton9.30am.
Meet Beit Arch. £3.50 for coach.

Wargames Meeting1.00pm.
Senior Common Room.

MONDAY

Curry Soc12.30pm.
Weekly meeting. Southside Upper Lounge.

Artsoc Meeting12.30pm.
SCR Union. Come to sign up and pay your money for tickets for forth-coming events, eat biscuits and drink coffee. Free to members (membership £1.50).

Recitation of Holy Qur'an1.00pm.
9 Prince's Gardens. See Islamic Society.

Golf Practice5.30pm.
Union Gym. See Golf Club.

Intermediate Ballroom7.00pm.
JCR. 80p. See Dance Club.

Shotokan Karate7.00pm.
Southside Gym. Beginners welcome. £1.

Well Soc Speaker Meeting7.30pm.
Physics LT1. Dr Mary Archer, scientist, presenter and wife of politician Jeffrey Archer gives an illustrated talk on Solar Energy production. Free to members.

Beginners Ballroom8.00pm.
JCR. 80p. See Dance Club.

TUESDAY

Christian Union8.15am.
Chemistry 213. See Steve Clark, Christian Union.

IC CathSoc Mass12.30pm.
Chemistry 231. Quiet and contemplation between lectures or exams. Food provided (50p). All welcome.

Boardsailing12.30pm.
Regular meeting in Southside Lounge to organise trips.

Jazz Club Committee Meeting12.45pm.
Member election will be held.

Ski Club12.45pm.
Above Southside Bar, sign up for lessons and recreational skiing.

Speaker Meeting1.00pm.
Chem Eng LT1. Mr John Monks, Deputy General Secretary of the TUC. Free to members including buffet.

MopSoc Lecture1.00pm.
Physics LT2. Professor Isham on superstrings. Free to members.

Lunch Hour Programme1.15pm.
Read Theatre, Sherfield Building. Enslaved to Beethoven? By Roderick Swanston.

Holy Qur'an Recitation1.30pm.
Prayer Room. See Islamic Society.

Islamic Circle5.30pm.
Prayer Room. See Islamic Society.

Group Meeting5.30pm.
Brown Committee Room. Everyone welcome. See Amnesty International.

Wine Tasting6.00pm.
Union SCR. Quality supermarket

wines at a budget price. £1.50. See Wine Tasting Soc.

Judo6.30pm.
Union Gym. Beginner welcome.

Caving Club Meeting7.00pm.
Southside Upper Lounge.

Advanced Ballroom7.00pm.
JCR. 80p. See Dance Club

Chamber Music Concert7.30pm.
The Music Room, 53 Princes Gate. Our first major concert, marvelous value at only £1 (75p members) including wine and food.

OpSoc Rehearsal7.30pm.
53 Princes Gate. See OpSoc.

Beginners Ballroom8.00pm.
JCR. 80p. See Dance Club.

WEDNESDAY

Cross Country12.30pm.
Meet at noticeboard. London College League-Guildford.

Explanation of Holy Qur'an1.00pm.
9 Prince's Gardens. Talk given by Dr Darsh. See Islamic Society.

Circuit Training12.30pm.
Union Gym. Free to Keep Fit Club members.

IC Gay Okay12.30pm.
Green Committee Room, Top Floor of the Union Building.

Ski Club12.30pm.
Above Southside Bar. Meet for trip to dry ski slope for lessons and recreational skiing. Bring gloves and thick socks.

Transcendental Meditation12.40pm.
Common Room, Level 8, Physics. For clear thinking and more energy!

Golf Meeting1.00pm.
Sudbury. Regular weekly meeting.

Caving Club Meeting1.00pm.
Union Snack Bar.

Wargames Meeting1.00pm.
Senior Common Room.

Beginners Rock n Roll2.00pm.
UDH. 80p. See Dance Club.

Shotokan Karate3.00pm.
Southside Gym. Beginners welcome. £1.

Advanced Rock n Roll3.00pm.
UDH. 80p. See Dance Club.

THURSDAY

Meth Soc12.30pm.
Huxley 413. Capt Gary Jones of the West London Mission will be talking on London's homeless. Lunch 50p

ICYHA Meeting12.30pm.
Southside Upper Lounge.

Socialist Society Meeting12.45pm.
Brown Committee Room. All welcome. Contact Adrian Grainger (Maths 3).

Ski Club12.45pm.
Above Southside Bar. Sign up for lessons, racing team and the holiday at Christmas.

AstroSoc Lecture1.00pm.
Physics LT3. Dr Raymond Hide from the Met Office lectures on 'Planetary Magnetism'. Free to members (membership £1.50).

SFSOC Library Meeting1.00pm.
Green Committee Room, Union Building. Borrow books from our vast library, help plan future events and generally enjoy the only democroanarchic dictatorship at IC! Members only.

Lunch-Hour Concert1.30pm.
The Music Room, 53 Princes Gate. Gina McCormack (violin) and Nigel Clayton (piano).

Arabic Classes1.30pm.
Prayer Room. See Islamic Society.

Gliding Club Meeting5.30pm.
Aero 254. Arrange trial flights, lifts to Lasham, talks and then to the bar.

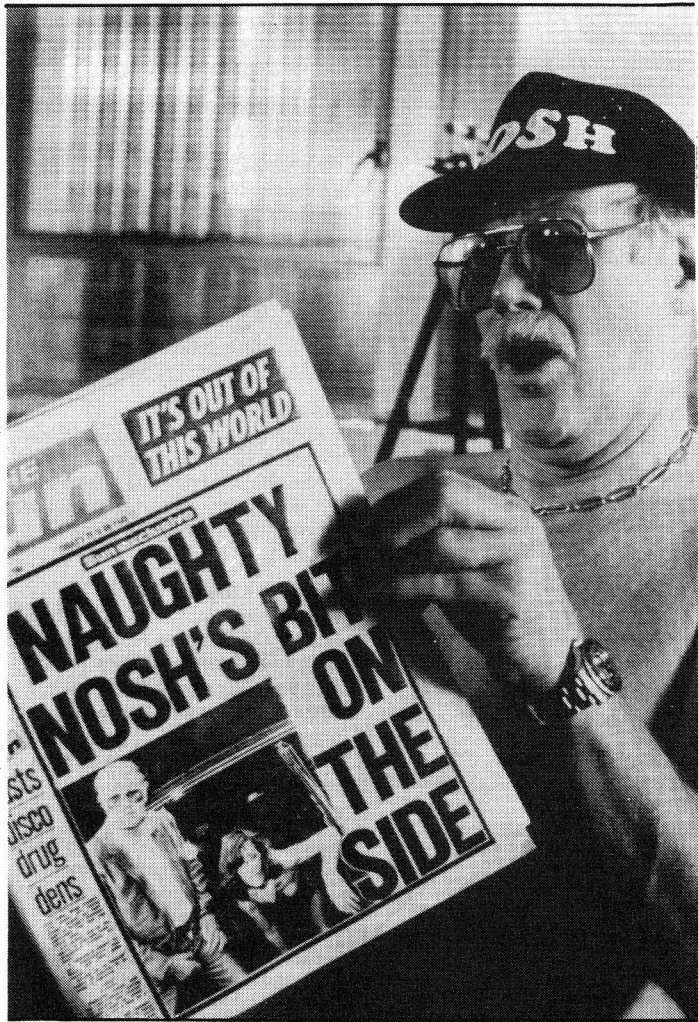
Orienteering Training5.30pm.
Union Gym. Social meeting held from 6.30pm onwards.

Judo6.30pm.
Union Gym. Beginners welcome.

Film Soc7.30pm.
Mech Eng 220. 'All of Me' - hilarious comedy starring Steve Martin and Lily Tomlin.

Gay/Lesbian Group ..7.30pm.
ULU Building, Malet Street. Mens group room 3a, womens group room 2e. Meet weekly for speakers and booze.

ICGAG Soup Run9.15pm.
Weeks Hall Basement. See Imperial College Community Action Group (ICGAG).



Eat the Rich

Eat the Rich is the second feature to come from the Comic Strip stable, following on from the deservedly successful *Supergrass*. However, although directed and co-written by Comic Strip founder Peter Richardson, the usual gang (Nigel Planer, Rik Mayall, Robbie Coltrane...etc) have all been given minor roles, a clever move considering the amount of exposure they've had elsewhere recently.

Eat the Rich is a portrayal of Thatcher's Britain exaggerated to farcical extremes, exemplified by the hilarious character of the Home Secretary, 'Nosher' Powell, an ex-heavyweight boxer, who's solution to almost any problem from terrorist sieges to Union leaders is a sharp left hook; and whose opinions are summed up by his statement on television that "some people in this country are very rich, but most of you are very poor. You're all lazy bastards."

Apart from Nosher the plot follows the adventures of Alex, the horrendously camp ex-waiter at 'Bastards', a restaurant where Panda steak is on the menu and people leave 50 quid tips, who is now down-and-out, tramping the oppressive and lonely London streets. Driven to desperation by a social security clerk, Alex decides to start a peoples' uprising, whereupon he becomes a victim of the machinations of

Commander Fortune, a Russian spy trying to depose Nosher. Joining up with a group of three other totally inappropriate revolutionaries and armed with bows and arrows, they take over 'Bastards', change the name to 'Eat the Rich' and start serving up the customers, but are eventually revealed by Fortune in an attempt to scandalise Nosher.

Eat the Rich is over the top in almost every way, from its rather obvious allegorical treatment of Britain today, to the pounding soundtrack of Motorhead and yet it all seemed to fit together quite well. The comedy is patchy, the plot giving the impression of having been constructed around a few clever ideas, but some of the scenes were so funny I thought it was worth getting through the slower ones. What makes the film work are the ridiculous characters (of which there are plenty) and who are all excellently portrayed; especially Alex (Lamar Pelly), her gang (Ron Tarr, Jimmy Flag, Fiona Richmond) and of course, Nosher. Not as good as *Supergrass*, in the end, but definitely good fun. Incidentally the film is brimming with celebrities playing minor roles, apart from the Comic Strip team. See if you can spot any of the following: Angie Bowie, Jools Holland, Paul McCartney, Sandie Shaw, Koo Stark and Bill Wyman!

A. K.

A Nightmare on Elm Street— Part 3 Dream Warriors

Surprise, surprise, Freddy's back again. For those unfamiliar with the *Nightmare* series, Freddy Krueger (Robert Englund) was a child murderer who was burned alive by a group of vigilante parents and who subsequently returns to terrorise their children in their dreams, complete with grisly appearance and razor-tipped right hand. This time the unfortunate teenagers are all locked up in the local asylum after they become violently fearful of sleeping. Fortunately, a specialist in dream disorders (well I didn't spot it at the Careers Fair) in the shape of Dr Nancy Thomson (Heather Langenkamp) arrives, and by coincidence is the sole survivor of a group of teenagers who suffered the same fate back in *Nightmare I*. As they are gradually killed off, Nancy leads them into a combined attack on Freddie.

Meanwhile, the caring Dr Neil Goldman (Craig Wasson) is involved in a race to locate Freddy's earthly remains guided by Nancy's father John (John Saxon).

Dream Warriors sees the return of Wes Craven, the writer of the original *Nightmare*, but don't let that fool you into thinking it might be good—this latest sequel has none of the originality of the first. Despite a promising beginning (which even had me wincing at one point) the film rapidly descends into a kind of 'Five go mad in Dreamland'.

A momentary glimpse of Zsa Zsa Gabor serves no purpose, the title song by Dokken and inevitable soundtrack are gimmicks which do nothing but highlight the incoherent plot and paper-thin stereotypical roles. I'd rather have an early night.

A.N.



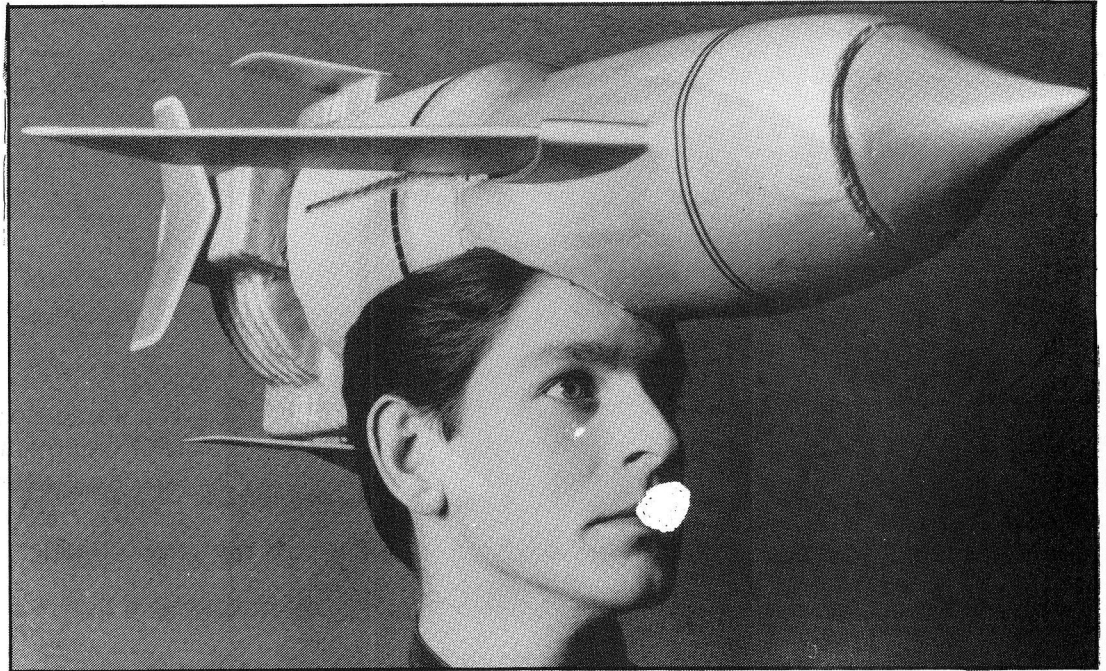
Thunderbirds

Mime Theatre Project
(Bloomsbury Theatre)

This is your last chance to see *Thunderbirds* as you've never seen it before; in mime. This hit of the Fringe returns to London for five days due to popular demand. How can two people perform an entire adventure featuring Thunderbirds and Captain Scarlet? In fact they manage brilliantly with a combination of fast action, quick changes and atmospheric music.

The story includes all the memorable moments from the series, an assassination attempt on the World President is foiled by Captain Scarlet and International Rescue save him from a train balanced precariously on a bridge which has been sabotaged by the mysterious Mr X. All your favourite characters appear in some guise or another, Lady Penelope, Brains, Jeff, Parker and even *Stingray's* Marina.

Technically the mime is superb in its own right, for example the



portrayals of crashing waves or huge waterfalls are convincing, and with the added advantage of such a well-known series it is fabulously detailed (remember the collapsible palm trees

on the launch of Thunderbird 2). Any pauses are neatly filled with the well-known music which cleverly evokes the atmosphere of the original.

The energetic duo are moving on

to new ground in the shape of *The Six Sided Man* inspired by Luke Rhinehart's *The Dice Man*, so catch this before it finishes on Saturday!

A.N.

MUSIC

Albums

Pet Shop Boys

Actually

More from the dull duo in the same successful style as *Please*. This time there's more gloss and less content, with the same mix of depression disco and embarrassing ballad. Great singles (*It's a Sin*, *What Have I Done to Deserve This*, *Rent*) and the tongue-in-cheek *S-H-O-P-P-I-N-G* *We're Shopping* makes up for the embarrassing *It Couldn't Happen Here*. Well crafted pop with just the right measure of self-consciousness and intelligence.

A.N.

Live

Bryan Adams—Wembley

After the sweet, raunchy melodies of *T'Pau* in the first half of the show, Bryan Adams had a lot to do to maintain the quality of this show.

Bryan bust on to stage in a modest black shirt and blue jeans, and from a distance looked not unlike IC DP Alan Rose.

Swirling rhythm and blues guitar, solid rock drumming and of course

Bryan's gruff yet tuneful vocals all went together to make the perfect ingredients for an exciting and atmospheric concert (shock-atmosphere at Wembley Arena!)

The show was made up of the best of his last two albums *Heat of the Night* and *Reckless*, with a few old favourites thrown in for die hard fans.

The best reactions of the night were given to songs like *Reckless*, *Run to You*, *Somebody* and *Summer of 69* which was excellent as the finale.

The new songs are not quite as commercial, with fewer out-and-out rockers, they do however show a lot of maturity and of course still maintain that killer hookline.

My personal favourite of the night (if you exclude the lead singer from *T'Pau*) was the moving *Nature Sons* a song for the American Indians which makes you sit back and simply think.

D.W.

Thomas Greig
Aaron Kotcheff
Alex Noble
Dave Williams

FILM

Who's That Girl

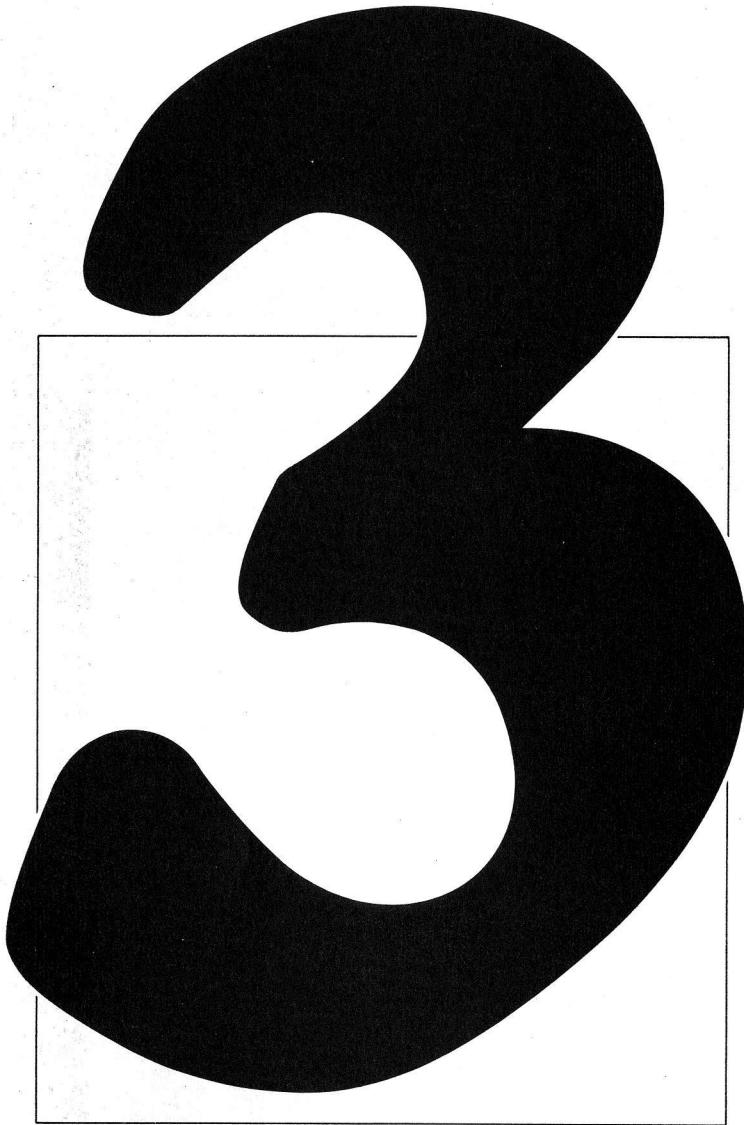
That girl is Madonna playing Nikki Finn, who having just been released from gaol, crashes head first into the well ordered, successful and extremely sensible life of Loudon Trots (Griffen Dune), completely destroying it within a few hours. Of course the result is a transformed wacky and exciting Loudon.

It is a film full of stereotypes: Madonna is as usual a tarty streetwise version of Mickey Mouse; the rich father; two hoodlums; the plain clothed cops; the highway patrolmen; the dumb fiancé; the disgustingly wealthy eccentric and a Rolls Royce that gradually gets wrecked, all combining to make an unremarkable and predictable film. Undoubtedly Madonna will get some bad press for this film, and none of the rest of the cast deserve to receive an oscar for their performances.

However, despite all this I did find myself laughing out loud on a lot of occasions, and if you don't expect too much, you won't be disappointed. *Who's That Girl* is fun but I just wish that everybody hadn't fallen in love at the end.

T.G.





Good reasons why

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3 You want to hear it 'from the horse's mouth'.

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T H E L E A D I N G E D G E

Food and Refreshments provided.

Spiritual crossfire

IC Film Soc presents *All of Me*
Thursday November 5,

7.00pm, Mech Eng 220

Roger Cobb (Steve Martin) is a lowly attorney with a high-powered law firm who'd rather be a jazz musician. Edwina Cutwater (Lily Tomlin) wants to live longer, and arranges with a Far Eastern mystic to be transferred into the body of a lusty young woman. When Roger visits Edwina to revise her will, he gets caught in the spiritual crossfire—and Edwina ends up controlling the right-hand side of his limbs. His right leg takes dignified lady-like steps; his left strides ahead boldly. He talks to himself in an imperious falsetto and his own baritone. To everyone else in the world, he's gone crazy. And so starts the hilarious film *All of Me*, starring top American comedian Steve Martin, star of *The Jerk*, *Three Amigos*, and the forthcoming *Roxanne*.

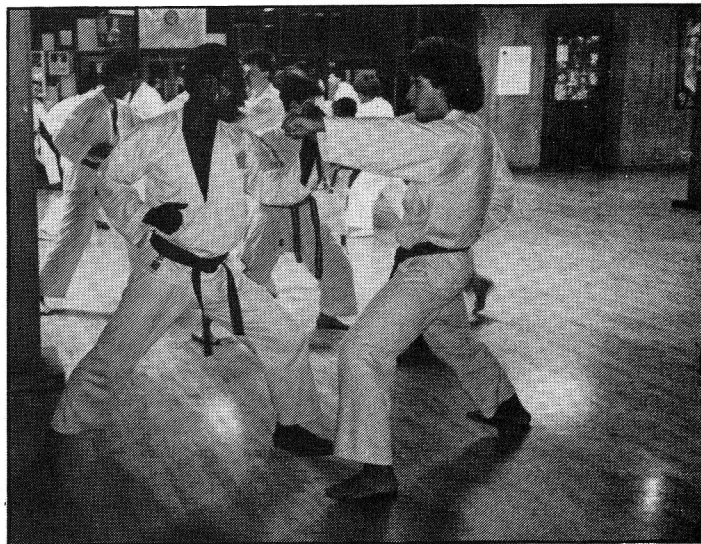
Don't miss this hilarious comedy.

“Karate is my life”

On Thursday October 22 Sensei Dave Hazard, a 5th Dan and former British Champion, visited Imperial's Shotokan Karate Club. Over 50 people turned up to train with Mr Hazard and benefit from his unique brand of teaching.

The lesson was split into two parts—the first catering mainly for beginners, while the second half of the lesson was for advanced students. The session started with the basic moves fundamental to karate; proper execution of punches, kicks and blocks were taught and these were then applied during sparring. The advanced class consisted of combinations of punches, kicks and blocks, with much importance being placed on speed and power.

Throughout the lesson Sensei Hazard stressed the need to develop a good martial spirit, and great emphasis was placed on 'Kime' or focus. The evening ended with a series of hard hitting strikes and blocks being exchanged between



Sensei Hazard and Sensei Caesar Andrews the Club's regular instructor. Sensei Hazard has had a long and distinguished career in Karate and runs his own club in Brighton. After the lesson he took time to discuss some of his views on karate.

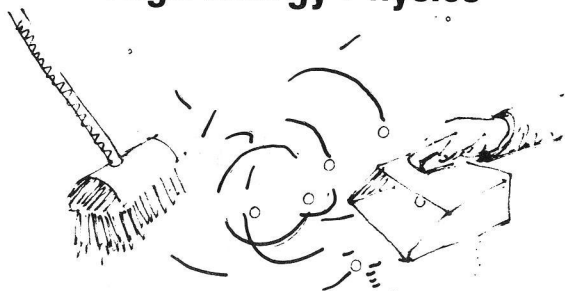
A strong believer in traditional karate, he stresses that without history and tradition there is no karate. Although Sensei Hazard praises those who practice karate solely as a sport and admires their athletic activity, he maintains that those who show a good balance between fighting, Kata (pre-set moves against imaginary opponents) and basics will be strong

in karate for life. Above all, Sensei Hazard believes that the quality of the karate performed depends upon the practitioner and his enthusiasm.

When asked what karate meant to him, Sensei Hazard replied simply 'Karate is my life. It is the vehicle I use to live.' Throughout the evening Dave Hazard endeared himself to his students with his combination of skill and sense of humour, making it a pleasure to train under him.

For more information about the Karate Club contact the Captain, Maurice Patel (Geol III) or come to any training session (see the What's On page). Beginners are always welcome.

A Plain Man's Guide to High Energy Physics



(Get rid of as many elements as you can!)

In particle physics we try to reduce the number of elements as far as possible.

Earlier in the century, when we were first discovering the elements of matter, electrons and protons were just about all we knew.

Since then, to say the least, the number of known particles has increased drastically.

With the introduction of quarks and gluons we have attempted to

make the subject manageable.

But at every level of physics God demonstrates his greatness; we will never really understand nature.

In man's search for God – what we call religion – we are in a similar dilemma. God is so great that we will never discover what he is like by our own efforts.

In Jesus, God reaches out to us so that the number of elements is reduced from infinity to one.

A series of events in
week eight, Nov 23-28
organised by Imperial
College Christian Union

8

"This is eternal life: that they may know you, the only true God, and Jesus Christ, whom you have sent." John 17:3

Yahooooo!

If anyone missed us at the Freshers' Fair and is interested in doing a parachute jump come along to our meeting on Monday November 2 in the Lower Union Lounge at 12.35pm

The cost of the course is £65 which includes 8-10 hours instruction by British Parachute Association approved instructors, equipment hire (boots, helmets, jumpsuits, main and reserve canopies) and your first jump. Subsequent jumps are £12, £4 of which will be refunded by us on production of a receipt. The training will take place on the evenings of the November 24 and 25 (Tuesday and Wednesday). The training is completed on the Saturday at Headcorn Parachute Club (near

Ashford) and weather permitting you will also do your first parachute jump. Yahoo!

If after reading the above you are really interested you will be required to pay £4 Club membership and a £15 deposit to secure your place on the course. (Cheques with a bankers card and cash are accepted.)

However if you are still unsure come along to the meeting and talk to some of the people who have done not just one jump but 10, 25, 100 even 140 jumps!

We look forward to seeing you on November 2.

Maxina Hunt von Herbing
(Chairman)

MENS HOCKEY

Rout prevented



IC 1st—3
Sussex University 1st—0
IC 1sts—1
Ashford—3

IC 1sts began a long Saturday with a 3-0 win in a rearranged UAU game against Sussex at Harlington. Coming forward from the start, IC were soon in the lead. Although 3 goals were eventually scored, only fine goalkeeping and inept attacking prevented a rout. Paul Skipworth, adding two to this season's tally of five, seemed the only player who knew what to do when presented with an open goal.

After the afternoon's entertainment, watching the 2nd team beaten 6-2 by OMT 2nds, the 1sts were chauffeur driven to the astroturf at Feltham School. The game started explosively on the faster surface, with Middlesex league opposition Ashford soon working an opening goal. Shaken, IC

adjusted their game to the pitch and were quickly holding their own. Now, playing the best hockey of the year so far, IC put pressure on the opposition but barely penetrated their penalty 'D'. Failing to make any impression attacking on the right, partly due to excellent covering work by Richard, Ashford pressed on the left side of the IC defence during the second half. Despite stout work, the unsupported Brooking was regularly overrun, leaving only Stonham and Garside to defend the IC goal. Having found the way through, Ashford struck twice in rapid succession, leaving the omniscoring Skipworth's goal from a short corner as a mere consolation. Ashford won 3-1. Thanks go to 2nd team skipper Andy Lewis for his sideline inspiration.

ORIENTEERING

Army training

Last Sunday, the Orienteering Club went to an event in Stroud near Rochester; the weather, for a change, was excellent.

The event was very well organised by the Royal Engineers and most of the terrain was mapped out on their training grounds. Consequently, there were many controls sited on features such as World War Two bunkers and several warning signs saying 'danger high voltage fence' and 'beware, booby traps'. However, this did not deter any members from completing the course but a few were cautious wondering in which fields the mines had been placed!

The green course (described by the army as 'heavy going') had a particularly gruesome control placed in the middle of an impenetrable forest. Orienteers had to literally fight their way through.

Training is as usual on Thursday 5.30pm in the Union Gym with post mortems of previous week's events and arrangements for the following week being made.

SAILING

Foot Trophy

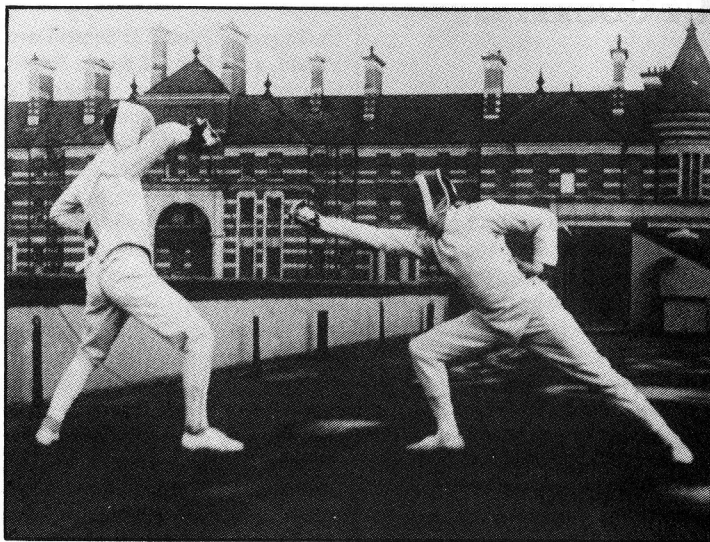
Last weekend saw the IC sailing team in their first match, in the Foot Trophy, organised by ex-University of London sailors at Welsh Harp Reservoir. In this first match of the season the team showed great promise with new helms Bill Chard and Rob Kimberly showing consistent sailing.

The highlight of the weekend was a very satisfying win for IC against the University of London first team. At the start, aggression by Apostolous Leonhidopolous forced the UL captain away, allowing IC to take a commanding lead with first and second places. Unfortunately at the first mark a mistake by Rob Kimberly allowed UL to regain second place and they capitalised on it to take third place as well. However, IC were still in the running and pulled back slowly so that at the finish they had regained second and third places to finish first, second and third.

Team: Robert Kimberly, Carol Eastwick, Bill Chard, Richard Jarman (Capt), Sam Page, Daniel Lucas-Clements, Apostolous Leonhidopolous, Richard Morris.

FENCING

First round of UAU



This year IC Fencing Club will be hosting the first round of the UAU. In addition there will be a number of friendly matches this term. There will be team trials tonight in the Union Gym for all the experienced fencers who didn't turn up at last week's team trials.

Friendly matches:
IC vs Morely—Nov 13
IC vs QMC—Nov 27

The Fencing Club caters for both experienced fencers and beginners with professional coaching on Thursdays. All equipment is provided by the club. Any women fencers with even the tiniest amount of experience, we are hoping to have a ladies team this year for the first time in many years. So please come along and fence.

RUGBY

Convincing win for IC

IC 1st XV—24
Sussex 1st XV—13
IC started their UAV campaign with a convincing win. After an initial setback, S Smith motivated the large and mobile pack which began to dominate up front leading to good possession from which S Hall crossed for the first of his two tries. The forwards then tightened up the next play and Pete Galley touched down from a five yard scrum. After half-time IC stepped up the pressure and enterprising play in the three quarters set up tries for J Sharp and S Hall on the wings. From a penalty move ten yards out E MacLean picked up a scrappy ball and a drive over from five yards to finish the scoring. This was a very encouraging and promising result for IC with man of the match J F Blamo at fullback.

Impressive start to UAU

IC 2nd XV—21
Sussex 2nd XV—0
An impressive start to the UAU competition saw IC 2nd XV stroll home against an inferior Sussex 2nd XV. Captain D Davies motivated his aggressive pack into a murderous frenzy shortly before kick off which led to total domination by the IC forwards in the set pieces and loose play. Tries flowed from D Davies (2) and, K Dolan and Jonathon Menitt, with outstanding support play from D Clapp, J R Peacock and A Dixon. The backs ran strongly and swift hands in the centres allowed a lot of space for the attacking fullback and wings.

Man of the Match: K Dolan

IC 3rd vs Sussex 3rd XV
Sussex failed to raise a team which gives IC a default win.

FOOTBALL

ULU Challenge Cup

IC II—17

QMC IV—0

What can we say! A game of 2 halves. QMC started defiantly, holding out with 10 men for 15 minutes, before Pip Peel sneaked the winner. 16 goals later, jugs were offered by Paul Stott (4), Neil Vanderbegin (3), Pete Rick (3). Other scorers; Adam Thomas (2), Pip Peel (2), Rakesh Muthoo (2), Jezz Holland (1).

First class seconds

IC II—8

Sussex—2

Another game of 2 halves, each lasting 45 minutes. Again, Pip Peel was the opening scorer, as IC cashed in on early pressure. A defensive slip 10 minutes later, let Sussex through. However, Mike Plummer, was there to callously chop the forward down. The ensuing penalty was converted to equalise IC's early goal. After another 10 minutes the scoring started. Adam Thomas put IC back in the lead, but straight from the KO Sussex equalised. Again, straight from the KO, Adam was there again to restore IC's lead. The 2nd half started with a bit of pressure from Sussex. Then came the turning point in the game. Sussex's centre forward raced through, but Russ Dark, obviously lacking speed chopped him down. He carried on, but his shot past Simon Holden was cleared off the line by Russ straight away, IC rushed up field to bury Sussex, with Paul Stott opening his account. Eventually, 4 goals later, IC were 8-2 victors, with other goals from Paul Stott (3) and another from Adam Thomas.

First win

KCH II vs IC V

IC Vs managed their first win of the season in a cup match against King's College Hospital (KCH II) last Saturday. Missing regular goalkeeper, Captain Jon Turner played in goal and looked set to keep a clean sheet until 15 minutes before full time.

By this time IC were 2-0 up thanks to two goals from Bas Basma, one in each half. It was a good all round performance and a much needed victory after a poor start to the season. The final score was 2-1.

Unlucky own-goal

On Saturday, IC 3rds travelled away to Egham to play New College's 3rd team in the cup. When we finally arrived—via 3 motorways, due to Rob Kelly's navigation—IC started well, but could not convert the early pressure into goals. New College then got back into the match, but conceded an unlucky own-goal with about 10 minutes to go until half-time.

In the second half, both teams started well and after 15 minutes, New College equalised with a spectacular curling shot. The game then flowed from end to end with both sides going for the win. Then with 15 minutes left, Paul Neville scored for IC from a corner and Imperial survived the late pressure to hang on to the 2-1 win. They now play UC 2nd in the first round proper. Chris Burton played well in front of the biggest crowd of the season (his girlfriend) but man of the match was goalkeeper Julian Henson with several good saves.

Football appeal

Wanted: Football Managers I am looking for someone in Mech Eng, Elec Eng, and Civ Eng who is interested in putting a football team together to play in an inter-departmental tournament on Sunday mornings.

If the response is positive, games could start by the end of November.

Please contact James Wilson, Chem Eng 4, if you are interested.

Any people who would like to play football for IC, or played in the first Wednesday trials but have not been picked for a team, please sign their name on the Football Club notice board (between the Union Bar and Union Snack Bar). Our apologies for the confusion and to anybody who has been left out, this has largely been due to the cancellation of our second trial. Any problems please contact any of the committee through their department pigeonholes.

Martin Bradley (Physics III)

Al Bamford (Elec Eng III)

Paul Thomson (Mech Eng III)

CROSS COUNTRY

Selection confusion

So far this year the Club has had two outings. The first was at the Oxford Polly Relays where we managed to enter two teams. Fortunately there was a race once we got there despite the storm on the previous night! Everyone had a good run and finished close together in 8th and 9th places respectively. There was some confusion over selection but this is only to be expected on the first outing and the performances promise well for the future.

The team were placed as follows:

Alex Gaskell	34
Dave Knight	39
Mike Jones	63
John Porter	73
Ramin Dilmaghanian	75
Richard Hardiman	77
Graham Messenger	92
John Rowland	98
Stefan Ledin	106
Philip Gribbon	109
Angus Davison	133

Just one question, where are the women? C'mon girls! See you on November 4 for race two of the London Colleges League in Guildford.

LADIES HOCKEY

Strong opposition

IC vs Sussex (UAU)

This important match was postponed from Wednesday. Things started to go wrong when the goalkeeper turned up an hour early, found no-one there so went home. The game started well for IC with the ball spending most of its time in the oppositions half. This didn't last long! Very soon Sussex began to put pressure on IC.

After half time Sussex lifted their game and not even a stalwart defence especially from M Faldor and demon use of the offside rule could stop Sussex scoring 3 goals.

One consolation goal was scored from a penalty flick from S Hodgson making the final score 1-3 to Sussex.

UL 7-a-side

Imperial entered two teams for this competition, owing to the weather it proved to be the first serious hockey to be played by the ladies this season. Some good goals were scored by S Hodgson and P Ottway. The rest of the team played with great enthusiasm

Organisation of the tournament left a lot to be desired, however after a process of elimination and scoring which I still find incomprehensible, one team came 6th (out of 24) and the other team was unplaced. Finally many thanks to Spence for umpiring.

FIXTURES

Saturday October 31

Football

1st XI vs RSM I

4th XI vs Guys II

5th XI vs RSM II

Wednesday November 4

1st XI vs LSE I

2nd XI vs LSE II

3rd XI vs LSE III

Cross-Country

Saturday 31

Wednesday 4

University of York Relays

London College League II at Guildford

Cycling Club

Sunday 1—Meet 9.00am Beit Arch for London to Brighton Ride accompanying Veteren Car Rally.

Hockey

Mens:

1st XI vs Harrow

2nd XI vs NPL

3rd XI vs British Airways

Ladies:

1st XI vs Middlesex Hosp

Men 1st XI vs LSE

Ladies 1st XI vs LSE

RESULTS

Wednesday October 28, IC vs Surrey

	IC	Surrey		IC	Surrey
Golf	1½	4½	Rugby		
Football			1st	32	0
1st	0	9	2nd	4	19
2nd	0	0	3rd	18	4
3rd	1	1	Hockey		
Squash			1st	2	1
Mens	3	2	2nd	1	1
Ladies	5	0	Ladies	0	4

Francophiles wanted

Dear Judith,

You may remember the exchange visits that took place last year between students from IC and ESPCI (Ecole Supérieure de Physique et Chimie Industrielle) in Paris. The exchange involved industrial, academic and cultural events in both London and Paris and was judged by all involved to have been a great success. However, the organisers have now left College and unfortunately have not passed on their roles.

The students of ESPCI have sent a draft of their proposals for a 1988 exchange. If this is to go ahead, plans must be made for industrial sponsorship, travel and accommodation, industrial visits and social events. We urgently need a team of enthusiastic francophiles (?) both staff and student, to get the ball rolling. If any of your readers would like to be involved please will they drop me a note as soon as possible. A bientôt!

Sue Browne,
Elec Eng IV.

Clear image problem

Dearest,

I've heard talk of 'Freshers apathy'. I'm a first year and have some comments. First some problems with IC. Its image attracts apathetic applicants trying to avoid hassles. The high entrance requirements mean most students are studiers, and better than averagely well off. Thus less Union support and less outgoing people. All science students and few women leads to an atmosphere not conducive to creativity, or anything much. The large overseas contingent spend much of their time learning to live in London. The Union is the least of their worries. IC should be helping these students develop socially not complaining about them.

There are however plenty of 'active students'. Did they go to the UGM? No. The Union labels them apathetic. Student opinion: 'There must be something more interesting to do'. A clear image problem. Despite the publicity students saw no more than an extended lunch break. It wasn't something they felt they should go to, as opposed to 'Freshers events' which they were, and which were well attended. How about having the UGM 2.30 to 4.30pm with lectures before and after and reps reminding everyone just before-hand. I don't know if this could be timetabled. Then the message would be: 'It's something you do while at College' not 'come if you've nothing else to do'. Better organisation is required. Some people had to leave without voting to attend lectures.

Another good example was the RCS Laserium trip, ie equally badly attended, about 4 first years out of 23 (mainly Union hacks). Again image failure. A rep came to the lecture theatre and invited 200 people to come. Not very personal. Most students thought: yes very interesting, but they don't mean me, what shall I do instead. It failed

to reach 'Freshers event' status. Most people I know in my house went on a pub crawl invitation instead. Now the first year reps have been elected I hope they are used effectively. Had half a dozen reps gone round inviting small groups personally to come along and bring friends the attendance would have been much higher. It's harder to turn down a personal invitation.

IC does suffer from apathy, but it's not incurable. People in the appropriate position just have to give things a push. People will get involved if encouraged, and wonder why they weren't going anyway (take Freshers' Week). The push can take many forms as in the examples. It's up to the active people to encourage the rest.

Luv,
Cambel Si, Physics 1.

PS. I went to everything all Freshers Week events, tiddly winks, UGM, and the laserium trip. Most people's opinion of me: quiet, introverted, not the outgoing type. A fair description I suppose. So why did I go. Just curious to see what was going on. I probably fall into the category or, had nothing better to do.

Lower forms of life

Dear Judith,

Although term is a mere three weeks old, much criticism has already been directed at us Freshers so I feel it is about time that someone stood up and hit back.

Firstly, the UGM. Fresher 'apathy' and 'no interest in the Union' we were told in the aftermath of the dismal attendance. As any student knows, Freshers are laden with booklets, pamphlets and numerous other bits of paper of varying interest on arrival at Imperial. Therefore a small paragraph in the Freshers Handbook is easily missed. What about the posters, I hear you cry? There are literally hundreds of posters up around Imperial that are for the most part of very little interest, so one soon becomes oblivious to all but the most eye-catching of them. A far better way of publicising the meeting would have been to stress its importance at the Freshers Reception where, if my memory serves me correctly, it was not even mentioned.

And what of the Union? If we are to believe what we read in the pages of FELIX, the Exec (especially Mr Howgate) are a bunch of egocentric, power-crazed, mindless cretins, incapable of organising a grannies tea party! Hardly likely to endear us impressionable Freshers to the Union, or indeed encourage us to attend UGMs.

In replying to the above criticism in your last editorial you said, 'It doesn't really effect you anyway'. This is typical of the attitude of student bodies and organisations towards Freshers. We all appreciate the great work that you are doing for us but I do object to Freshers being depicted as some sort of moronic, lower form of life. One only has to look as far as the election of a Fresher (congratulations Tanya) as Guilds VP to see that the Freshers of 87 mean business.

Yours disgruntledly,
Simon Holden.

A long, long, long time ago I was a Fresher and I don't doubt that this year's intake 'mean business'. Let me take this opportunity to remind everyone of the free chips at next week's UGM.

Small Ads

ANNOUNCEMENTS

● **Acts** needed for the Smoking Concert. Anyone interested in having fun and helping Rag contact Steph Snell, Physics or via RCS Office.

● **Thrills**, spills and Nigel Baker—Rag meeting, 12.35pm, Union Lounge.

● **Micro Club**, 1.30pm, top of Union Building and follow signs.

● **Anyone** interested in watching rock and jazz music live, please drop a note to Martyn Peck (Chemistry I) asap. Meeting in Southside Lounge, Mondays 12.30pm

● **To all** residents in College accommodation—if you have not yet received a bill for this term please come to room 403a, Sheffield Building now or your name will not be entered onto the electoral roll for 87/88.

● **QT Soc**—Meet, meat, mate and all before you're very eyes in Stan's Bar (above Southside Bar) at 1pm every week.

● **Bean's Club** Extraordinary General Meeting, 2nd November, 8pm, Room 6323 Holbein House. All members welcome, past and present, any motions or proposed constitution amendments to be passed to the secretary before Monday.

● **Good** wine costs less at Sainsbury's. Tuesday 6pm, SCR wine tasting only £1.50

● **A trolley** spectacular tasting of supermarket wines. Tuesday 6pm, SCR, Wine Tasting Soc.

● **IC Folk Club**—Free fun, fireworks and folk music! 7pm onwards in the Holland Club, Thursday Nov 5.

● **Anyone** who has not lived in Linstead Hall in 1987, with belongings in the basement must have claimed and removed them by December 2.

● **Linstead** Hall basement sale December 5/6 1984. Wide range of goods at very reasonable prices.

ACCOMMODATION

● **Single Room** in large flat. Share with 4 males, near Ealing Common tube (40 mins to College), £26 p/w exclusive, tel: Doug on 992 6870.

● **Male PG**, non-smoker, looking for a single room in shared flat/house close to Imperial or if you are also looking along these lines contact me with a view to sharing a flat in this area. Richard Nords (Pet Geol, PG).

● **Accommodation** available in comfortable flat close to College shared with 4 males. Rent £44 p/w exclusive. Contact Jon Moores (Physics II).

● **1 Male** required to share room in flat in Fulham. £33 p/w (£23 with rent rebate) exclusive. 5 mins walk from tube, washing machine and phone (soon). Contact A M Taylor (Mech Eng II).

● **1 double** and 1 single bedroom, lounge, kitchen, bathroom, TV, telephone, would suit couple with child. 52 Hamlet Court, Hamlet Gdns, Hammersmith. Contact Mr Hatem Abdi on 581 4617 evenings.

FOR SALE AND WANTED

● **One Tom Waits** ticket for sale. Thursday Nov 19, Hammersmith Odeon, £12.50. Contact Louise Arnold, room 4.41 Geology (ext 5643).

● **Dual CS-505-1** Improved, as new condition (unwanted prize) £50. Contact M Doble (EE 3) tel: 741 5661.

● **Sansui TU-S33L** Tuner, mw/lw/fm centre tune and signal strength meters, excellent condition, with aerial, £45. Contact M Doble (EE 3) on 741 5661.

● **Honda 250cc** Dream, Y Reg, not used for a year, flat battery but otherwise a neat and reliable machine. A bargain at £65. Tel: Peter Darling on 228 8892 or 874 4964 (Putney) or contact Mining III.

● **Drummer** wanted for rock band. Experience and equipment not important. Come and discuss with Tristram Graham (Mech Eng II).

● **Ladies** pair of black suede and denim cowboy-style boots, £20. Contact Jane on 993 0214 after 7pm.

PERSONAL

● **Most sincere** thanks to whoever handed my driving licence into Southside security—SEC.

● **Vote** Caped Avenger.

● **What does POC** stand for? Find out at IC Amnesty letter writing stall, Thursday 1pm, JCR, everyone welcome.

● **The tapes** are brilliant, they kept me unconcentrate with the analysis for two hours. Thanks, Bengamin.

● **Level 8** blah blah piss up in a brewery blah blah ballooning blah blah zzzzzz....

● **Edna** and Arnold would like to announce their elopement and the opening of their joint sauna and massage club.

● **Sorry** to all heffies still in hibernation, hugging may have woken you—but it could be worse!

● **Some people** 'put the shot'—Wallace puts the Chairman.

● **The locks** on the drum cupboard in the Jazz Room will be changed on November 9.

● **Lonely** pot plant seeks company. Contact Simon, Flat 130 Hamlet Gardens.

● **Frustrated** student seeks nymphomaniac for platonic relationship. Contact N Bird, 54 Lexham Gardens.

● **The greatest** crime fighter the world has ever known is born! Watch this space...

● **Wanted:** Annie Lennox for small but energetic harem. Contact Flat 130.

● **Are you** Annie Lennox? Why not drop round to 130 HG, for a coffee and lots of squidgy bed games, wetsuit provided.

● **Emma**—we get the occasional glimpse of a poster, but not of you!

● **Is it a** tradition that Rag Chairmen are insane? Last year's was a potato, but this year's proposed the 2nd Lt.

● **Quote of the week:**
Dave Tyler: We'll start the meeting at 1.15. Some people's lectures go on a bit.
Heckler: Lectures? Dave, it's ten past one!
D T: Err...Uuh...some people's lectures do go on a bit.

ABORTION: In defence of PATA

Dear Editor,

I feel that I must defend PATA against the accusations made by Kemi Adenubi in FELIX (16.10.87), and particularly the charges that PATA should not criticise abortion and were not primarily interested in positive alternatives to abortion.

During the last academic year, I was its secretary. PATA had two inseparable aims: to inform people about the nature and effects of abortion and to promote more constructive options than killing the human foetus. The first aim was an essential prerequisite to the second, because unless people are fully aware of the destructive effects of abortion on mother and child, they are not likely to face the all too obvious difficulties presented by children. Whilst people continue to promote abortion as a panacea and refuse to discuss its damaging effects, PATA members may well feel encumbered with informing people about the nature of abortion.

It was also rather disingenuous of Kemi Adenubi to suggest that PATA did not place great emphasis on the positive ways of dealing with problem pregnancies. To our knowledge she has not obtained any of our literature, other than a single leaflet, or attended any of our meetings. If she had, she would have soon discovered that one of our main concerns was to promote the non-directive counselling and other services provided by LIFE (487 4776). Indeed their telephone number was prominent at all our stalls, and occasionally noted, if somewhat discretely, by young women.

In the face of somewhat simplistic treatment of the difficulties involved in abortion, we have tried to present a complete and honest picture of the alternatives available to someone faced with a problem pregnancy. I hope that PATA will continue to do so, and in particular that the caring help and philosophy of LIFE will become more widely known, perhaps through the services of FELIX.

Yours faithfully,

Paul Rice, PATA Secretary (1986/87).

Being with potential?

Dear Judith,

Kemi Adenubi tells us she is 'pro...the mother's life' (FELIX Oct 16). Along with a few lines explaining this position the rest of her article lambasts Imperial College's Positive Alternatives to Abortion Society and makes the tentative suggestion that were the enormous abortion figures broken down into particular categories they might become much more acceptable to us all.

I do think, personally, that the key to all these issues

lies basically in deciding whether or not the foetus is a member of the human species and whether or not one ever has the right to directly cause the end of the life of such a member. Ms Adenubi's few lines with regard to this area tell us '...every fertilised egg is a potential human being. The woman is an actuality, a human being who has been existing independent of her mother's womb for quite some time' and that pregnancy 'wreaks major changes in her body and life especially on her standing in society' and thus that she has the 'right' to choose 'safe' abortion.

What kind of science is in use in suggesting that the foetus is a 'potential human being' rather than a human being with potential? What concept of 'rights' is in use that makes 'independence' a clinching factor? What type of 'society' are we supporting that allows one section to decide that they have the right to step on another to further their progress? What are we doing to a woman undergoing 'major changes in her body', in the inherently natural preparation for motherhood, in supporting ripping into this process? Is all this really 'safe'?

If we believe in 'rights' and compassion and want to exercise them I do think we should be a bit careful and ask some of these questions. I too, I would note, am 'pro' the mother's life.

Yours sincerely,

Hugh MacKenzie, Civ Eng RA

Positive Alternatives

Dear Judith,

In reply to the opinion article 'What Positive Alternatives?' (FELIX Oct 16) I would like to ask Kemi why, if she is concerned about abortion issues, she hasn't attended any of PATA's meetings? If she had, she would have discovered that PATA, although predominantly male (which reflects upon IC) has a higher proportion of female members than IC—16%. However, abortion affects both men and women so the relevance of the ratio of male to female members of PATA seems small to me. Further, our first talk given by Pat Gallagher (a Life/SPLC member) on October 15 this year, entitled 'Positive Alternatives to Abortion', answered several points that Kemi voiced.

Kemi and anyone else are most welcome to come along to PATA's meetings and voice any *positive* criticisms or ideas as we are always willing to hear them.

Yours sincerely,

Rachel Dowling (Secretary of PATA).

Silly letter

Dear Judith,

Have any of your readers noticed the remarkable similarity between ICU President Ian Howgate and Zippy from 'Rainbow'.

Yours sincerely,

Rainbow Fan.

Felix

FELIX staff meeting
1.00pm
TODAY
EVERYBODY WELCOME!



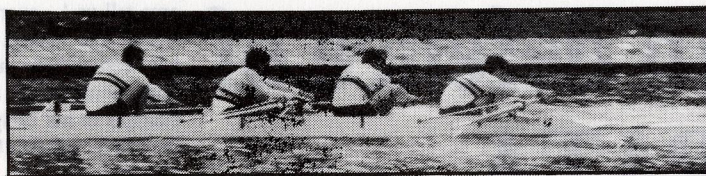
Government proposals lambasted

BADLY EDUCATED science students and poor research could be a thing of the future if Government plans for university research organisation go ahead. This is the view of the Committee of Vice Chancellors and Principals considering the proposals of the Advisory Board for the Research Council.

The proposals involve the creation of the three-tier system, with undergraduate and postgraduate courses, and a broad range of research in the top tier. Second-class universities would provide some general teaching and limited research, while only undergraduate and some MSc courses would be offered by third-class universities.

The Committee, while accepting that a concentration of resources was necessary to maintain the international standing of British research, felt that scientists would be deprived of the freedom the present system provides. It was also considered that some students would lose the benefits of education in a research environment.

Clubs sponsorship go ahead



IC Union clubs who gain extra money from sponsorship by outside bodies will be able to keep all of that money for themselves, it was decided at Union Finance Committee (UFC) last night. The committee passed a motion proposed by Robert Gee, the Chair of the Athletics Clubs Committee (ACC) and Neil McCluskey, the Chair of the Recreational Clubs Committee (RCC), which says that "sponsorship money should not affect the status of a club's recurrent grants from I.C. Union."

Toilet smells

FOLLOWING the destruction caused to the gents toilets in the Union Building at the MENCAP party, plumbers were called in to repair the damage. Recently obnoxious smells have been emanating from the area once more and the plumbers will have to be called in again to make further repairs. Alan Rose, IC Deputy President, is unhappy that the job was unsatisfactorily completed. The gents toilets on the ground floor are to be refurbished and partitioned into ladies and gents in the near future.

Bomber at IC

THE IRA BOMB expert, Gilbert McNamee, jailed for 25 years on Wednesday, was registered as a student at IC. McNamee, who was found guilty of conspiring to cause explosions, including the Chelsea Barracks, Hyde Park and Harrods bombings, enrolled in 1979 for a degree in Electrical Engineering.

A College spokesman said that as far as he knew he had arrived on the Monday for the start of term, but left on Thursday to take up a place at Queen's University, Belfast. College first learnt of the connection when contacted by the Times, and were able to confirm that McNamee from Newry Grammar School had been on College lists.

Glazed over

AFTER NUMEROUS complaints over the years from the residents of Albert Court Mansions about the noise from the Union Building, the College has finally coughed up an estimated £11,000 to double-glaze the Lounge and Concert Hall. The Lounge took three days to refit, the work should have been completed by Wednesday evening, by this time the contractors had only just started on the Concert Hall which has around three times the window area of the Lounge.

BRIEF

Price increase

THE PRICES in the Union Snack Bar (Norman's) are to go up on Monday according to Deputy President Alan Rose. This, claims Mr Rose, is to cover increased costs from suppliers and increases in staff pay which will come into effect soon. Norman Jardine, however, claims he has no knowledge of the price increases.

Norman did confirm that half portions will not be served anymore as, in his view, "students have been taking advantage of the system". He would like to see a 'strict' policy on prices and portions.

Cuts predicted

STAFF CUTS may be necessary due to Government cutbacks the ASTMS warned yesterday. The Governing Body has recommended that staff levels should be reduced by at least 100. It is hoped that this will be made possible by some staff over 60 retiring early.

Students banned

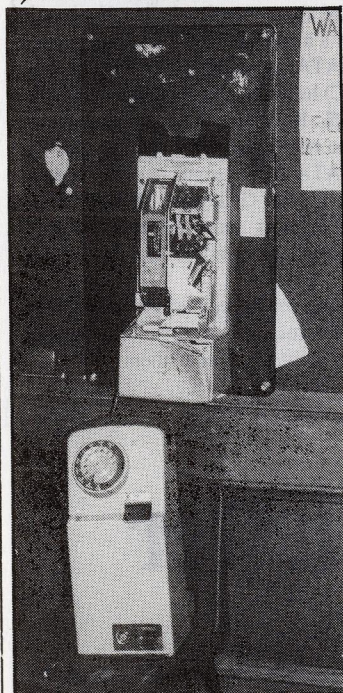
THE TWO STUDENTS who were involved in the assault on Union Bar Manager Adrian Johnson have been banned from all bars in College.

Study Survival kit

THE COLLEGE WELFARE Section have published a new guide to studying. The guide is to be distributed around College and will be available free to every IC student.

Rag Mag out soon

ICU RAG MAG will be launched at the Beer Festival this year following an absence of two years. The Festival kicks off ICU Rag Week on November 11 1987.



BT freebie

STUDENTS HAVE been enjoying free international phone calls courtesy of British Telecom for the last two weeks. It was discovered that the pay telephone in the Union Building was giving free calls and soon long queues were forming to take advantage of the freebie.

Elsewhere in College, the coffee machine in the JCR has been giving out free coffee to lucky and thirsty students.

Both faults have now been discovered by the relevant authorities and a new telephone has been installed on the central staircase of the Union Building.